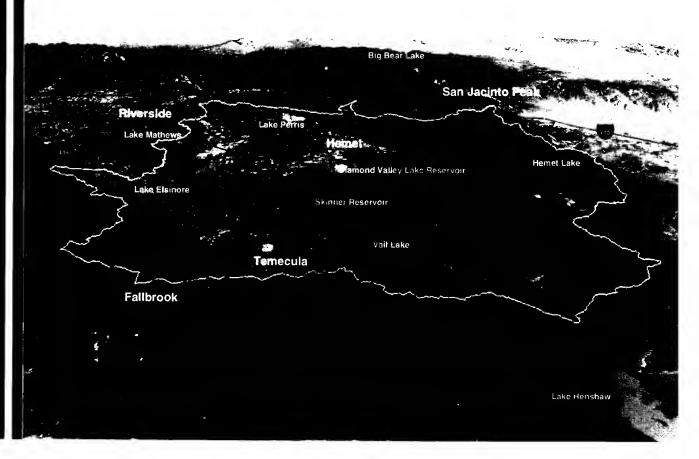


# Map Series of Aquatic Resources for San Jacinto and Portions of the Santa Margarita Watersheds

Robert W. Lichvar and Michael Ericsson

May 2003



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#### **ABSTRACT**

The purpose of the map series presented here is to visually present the identified aquatic resources in San Jacinto River and portions of the Santa Margarita River watersheds in western Riverside County, California, as part of the Special Area Management Plan (SAMP). A SAMP is a comprehensive aquatic resource planning effort in the context of Section 404 of the Clean Water Act (CWA). The U.S. Army Corps of Engineers, Los Angeles District is leading the development of the SAMP, and the Riverside County Flood Control District, representing the County of Riverside, is the local stakeholder. These are the spatial results of an overall study undertaken by the SAMP. The size of the study area is 36,1953 ha (894,405 acres). Mapped results of this study were compiled in the field using ArcView 3.2 geographic information system (GIS) and mapped at a scale of 1:4800 using Color Infra-Red Digital Orthoquads (DOQ) imagery. A unique method of combining the occurrence of vegetation communities and fluvial surfaces to determine the probability of being regulated was used to identify aquatic resources that might be considered as regulated under Section 404 of the CWA.

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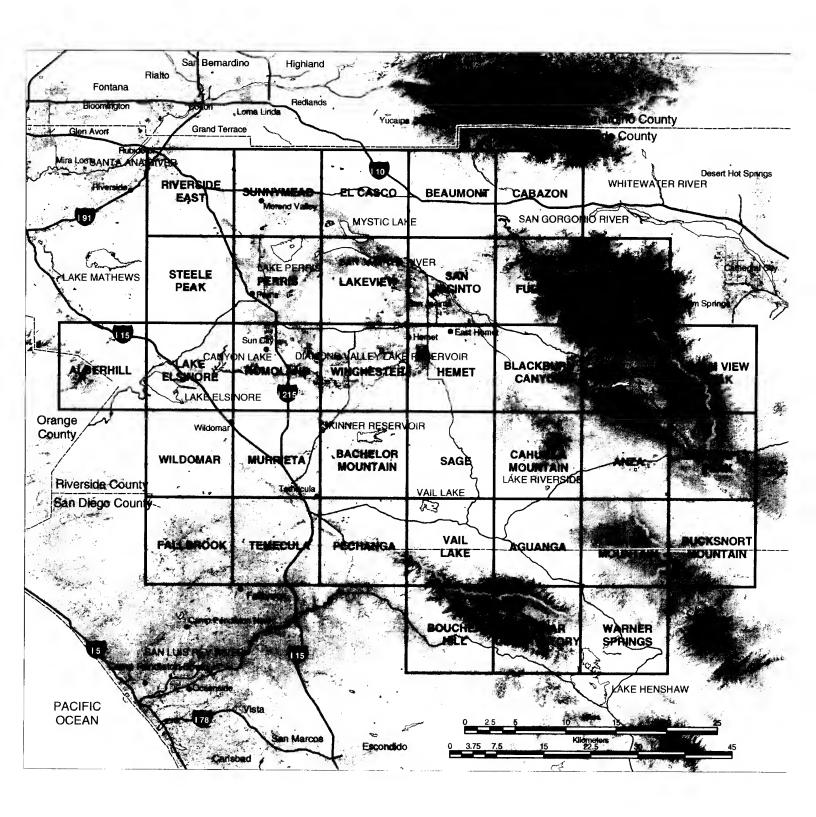
#### **PREFACE**

This report was prepared by Robert Lichvar, Research Ecologist, and Michael Ericsson, Geologist, both of the Remote Sensing/GIS and Water Resources Branch, U.S. Army Cold Regions Research and Engineering Laboratory (CRREL), Engineer Research and Development Center (ERDC).

Funding was provided by the U.S. Environmental Protection Agency (EPA) and Riverside County Flood Control and Water Conservation District (RCFCD), California. The authors acknowledge Zully Smith (RCFCD) and Fari Tabatabai, Los Angeles District, Corps of Engineers, for oversight and guidance throughout the study. They also thank Mary Butterwick, EPA, for her comments and suggestions dealing with scientific aspects of the study.

This publication reflects the personal views of the authors and does not suggest or reflect the policy, practices, programs, or doctrine of the U.S. Army or Government of the United States. The contents of this report are not to be used for advertising or promotional purposes. Citation of brand names does not constitute an official endorsement or approval of the use of such commercial products. The Commander and Executive Director of ERDC is COL John W. Morris III, EN. The Director is Dr. James R. Houson.

## **USGS Quad-Based Map Index**



# Map Series of Aquatic Resources for San Jacinto and Portions of the Santa Margarita Watersheds

ROBERT W. LICHVAR AND MICHAEL ERICSSON

#### INTRODUCTION

The overall purpose of the map series presented here is to identify aquatic resources in San Jacinto River and portions of the Santa Margarita River watersheds in western Riverside County as part of the Special Area Management Plan (SAMP). A SAMP is a comprehensive aquatic resource planning effort in the context of Section 404 of the Clean Water Act. The ultimate goal of the SAMP is to provide a management tool that helps reach a balance between protection of aquatic resources and reasonable economic development. The U.S. Army Corps of Engineers (USACE), Los Angeles District is leading the development of the SAMP in western Riverside County, California. The Riverside County Flood Control District, representing the County of Riverside, is the local stakeholder in the development of the SAMP.

The map series represents the results of the SAMP planning level delineation of aquatic resources that was performed by Lichvar et al. (2003) from the Engineering and Research Development Center, Cold Regions Research and Engineering Laboratory (CRREL). A planning-level delineation identifies those areas that meet both the jurisdictional requirements under Section 404 of the Clean Water Act and the California Department of Fish and Game (CDFG) Section 1600 Code at a watershed scale. Although the delineation is highly accurate at the planning level, it is not specific to any one site. Thus, a planning-level wetland delineation does not replace the need for a jurisdictional wetland delineation from the Corps of Engineers (COE) permitting program or the CDFG Section 1600 requirements. As such, these maps display the baseline occurrence of aquatic resources that were observed in these watersheds during the study period (August 2001 to May 2002).

### Study Area

The San Jacinto River and portions of the Santa Margarita River watersheds together encompass approximately 36,1953 ha (894,405 acres) and are located 12 km (7.5 miles) southeast of the city of Riverside in Riverside County, California. The cities of Temecula and Murrietta are located within the Santa Margarita watershed. The cities located within the San Jacinto watershed include Moreno Valley, Perris, San Jacinto, and Hemet. The watersheds are bounded by the Cleveland National Forest on the west and south and the San Bernardino National Forest to the northeast. The southern boundary of the study area was limited to the border of Riverside County and did not cross into San Diego County. However, in some instances, subwatersheds draining from San Diego County into Riverside County were inventoried and mapped because they influence the riparian wetlands and flooding within Riverside County.

#### Methods

### Mapping protocols

Potential aquatic resources were initially identified by interpretation of color infra-red digital orthoquads (DOQ) imagery obtained from the USGS (via the Internet). Aquatic resources were delineated in the field using the DOQs within a customized ArcView 3.2 geographic information system (GIS) on a Fujitsu 3500 Stylistic pen tablet computer. All mapping was at a scale of 1:4800, with a minimum mapping unit size of approximately 405 m<sup>2</sup> (0.1 acres). Using the GIS in the field allowed for viewing of support spatial databases (i.e. roads, contours, parcel information, etc) to better identify all potential aquatic resources.

The first-order, ephemeral, and intermittent streams were initially identified and delineated by interpretation of the DOQs remotely. In several instances, second- and third-order streams (Strahler 1952) were also identified as a single blue line because of their narrow width resulting from human influences that cause downcutting within the channel. These categories of streams, identified in this booklet as "Ephemeral Streams," are typically up to 10 feet wide and lack flood-plain surfaces. Ephemeral streams were verified for accuracy and precision using the field GIS as potential aquatic resources were delineated. Vegetation associated with washes that lacked floodplain terraces were assigned a hydrogeomorphic floodplain code of "Non-Floodplain Riparian."

### Vegetation classification

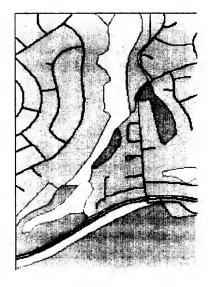
Vegetation map units were developed through a series of modifications to the California natural community classification by Holland (1986). In previous SAMP efforts in other watersheds in southern California, CRREL found that existing vegetation classifications lacked sensitivity for use in watershed-scale wetland delineations. To meet the needs of identifying wetlands, we developed a classification that followed the hierarchical schemes of both Holland and Sawyer and Keeler-Wolf (1995) but added another level of specificity at the species level (see legend). Our classification shares the use of growth forms and dominant species, with expanded use of additional species identifiers for both native and nonnative units. Figure 1 shows a comparison of the level of detail associated with the Holland and the USACE growth and species level classifications. In this map book, only the

species-association-level map units are shown. The complete report and growth-form- and species-association-level maps and all other pertinent spatial layers are provided at the web site: <a href="https://m2.crrel.usace.army.mil/pls/watershed/">https://m2.crrel.usace.army.mil/pls/watershed/</a> WATERSHED out2.watershedStart pk

### Hydrogeomorphic floodplain classification

Hydrogeomorphic floodplain units were mapped for the purposes of indicating flood frequency for use in delineation purposes. Typically floodplain terraces develop on second-order, third-order and greater Strahler stream types. First-order streams typically lacked floodplain terraces since they are located on steeper slopes, have smaller drainage areas, and are confined to bedrock channels that limit their ability to create floodplain terraces.

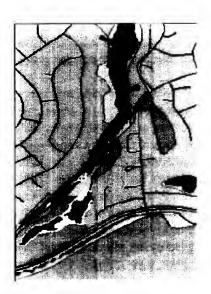
In this study the two floodplains map units identified in the field were the active and abandoned floodplain terraces (Fig. 2). The active floodplain, in this study, contains the bankfull and the adjacent active floodplain terrace that contains features associated with frequent flooding. These features include high-flow channels, unvegetated surfaces, bed and bank, and a break in slope. The abandoned floodplain terrace is above the active floodplain and contains features associated with infrequent flooding and seasonally wet areas. Potentially regulated hydrologic features in this terrace are driven by infrequent overbank flooding, local precipitation, and occasional groundwater discharge within paleo channels and other depressional features. Often there is a distinct change of vegetation community from the active to the abandoned



Holland Units

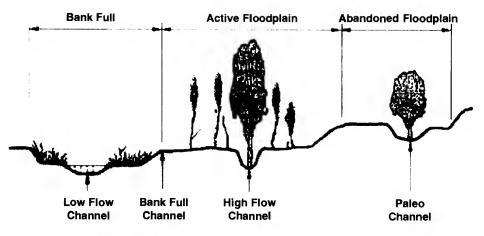


Growth Form Units



USACE Vegetation Units
Species – Association

Figure 1. Comparison of vegetation classifications.



Bank Full ...... 1 to 2 year return interval (regulated as wetland or WoUS) Active Floodplain ...... Less than 10 year return interval (regulated as wetland or WoUS) Abandoned Floodplain .............. 10 to 100 year return interval (regulated as wetland or WoUS)

Figure 2. Hydrogeomorphic floodplain units.

floodplain. The cross section in Figure 2 represents the ideal floodplain development, but in some instances one or more terraces may be lacking because of human influence, local soil conditions and geomorphology, or local precipitation patterns.

### Delineation technique

The modification of standard delineation sampling protocols and the development of wetland probability ratings for Section 404 regulatory purposes for the riparian vegetation map units allowed for a watershed-scale delineation. The sampling protocols outlined in the Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory 1987) and "Waters of the United States" (WoUS) at 33 CFR 328 were modified for use at the watershed scale. To delineate at this scale, riparian corridors were mapped for hydrogeomorphic surfaces representing a combined bankfull and active floodplain and a separate abandoned floodplain terrace (Fig. 2), which were later interpreted for return-interval requirements under Section 404. Individual vegetation units at the speciesassociation level were sampled at 169 sites to develop a characterization of the indicators for both wetlands and other WoUS. By combining field sampling results for wetland occurrences within various mapped vegetation types with the flood frequency information obtained from the geomorphic surface map, probability ratings intended for regulatory purposes were developed to accommodate all variations. Six categories of wetland or WoUS ratings were assigned to each of the riparian vegetation units, with ratings ranging from always regulated to upland or not regulated (Table 1).

#### **RESULTS**

We delineated 16,043 ha (39,643 acres) of aquatic resources in the riparian areas and 12,701 km (7,892 miles) of intermittent streams as WoUS within both watersheds.

#### Book format

The format of this field map book is based on the U.S. Geological Survey (USGS) 1:24,000 quadrangle boundaries. To locate an area of interest, use the USGS Quadrangle Index

Table 1. Wetland / WoUS ratings assigned to riparian vegetation types

#### Rating Description 1 Types meet the criteria for a wetland or WoUS 100% of the time 2 Types meet the criteria for a wetland or WoUS 67-98% of the time 3 Types meet the criteria for a wetland or WoUS 33-66% of the time

- Types meet the criteria for a wetland or WoUS 2-32% of the time (primarily uplands) 5 Types meet the criteria for a wetland or WoUS <2% of the time (primarily uplands)
- Unregulated upland

4

page and identify the quadrangle name for a specific location within the study area. Then find the tab with the quadrangle name, which will bring you to the map series for the identified quadrangle. Each quadrangle map\* within the study area is divided into quarters to create quarter-quadrangle maps. This provides two map scales to view. The quarter-quadrangle

map layers for each quadrangle and quarter-quadrangle map. The "Regulatory Probability Ratings" is the first map in the series, followed by the "Vegetation Species – Association Units" and "Hydrogeomorphic Floodplain Units." The order of these maps in this book is listed below:

maps show more detail than the quadrangle maps. There are three

<sup>\*</sup>An explanation of map units and other support information is provided on the legend in the back of this book.

Quad Map	NW Quarter- Quad Map	NE Quarter- Quad Map	SW Quarter- Quad Map	SE Quarter- Quad Map		
Regulatory Probability Ratings	Quarter-Quadrangle Regulatory Probability Ratings					
Quad Map	NW Quarter- Quad Map	NE Quarter- Quad Map	SW Quarter- Quad Map	SE Quarter- Quad Map		
Vegetation Species— Association Units	Quarter-Quadrangle Vegetation Species–Association					
Quad Map	NW Owner	NE O	aw.o	an a		
Hydro-	NW Quarter- Quad Map	NE Quarter- Quad Map	SW Quarter- Quad Map	SE Quarter- Quad Map		
geomorphic Floodplain						

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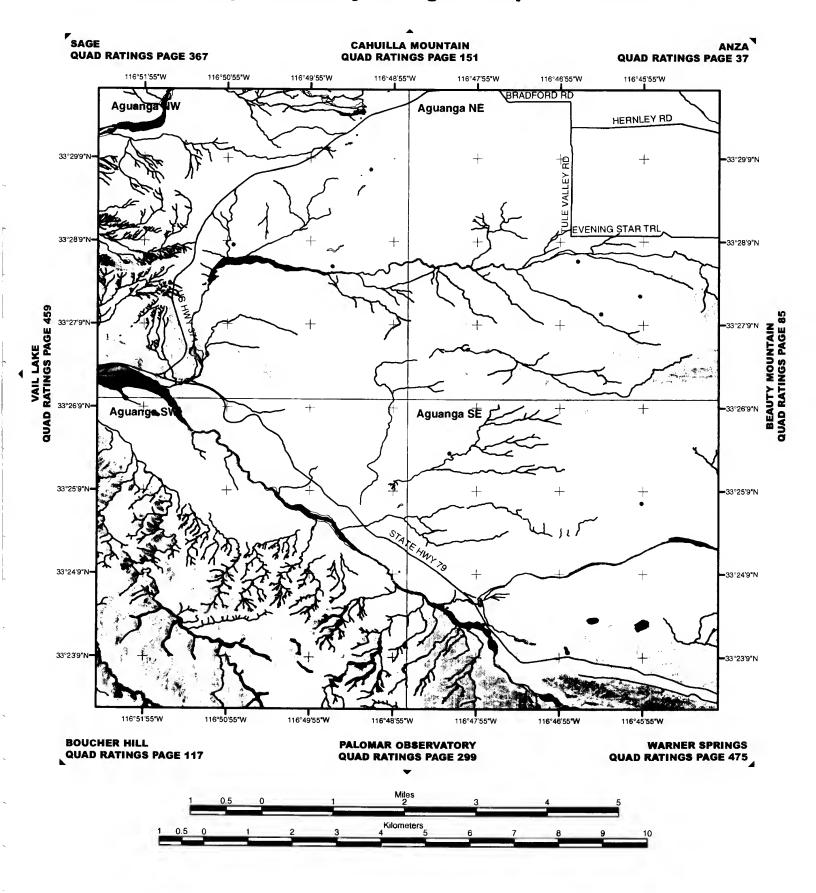
Holland, R.F. (1986) Preliminary descriptions of the terrestrial natural communities of California. Unpublished report. California Department of Fish and Game, Sacramento, California.

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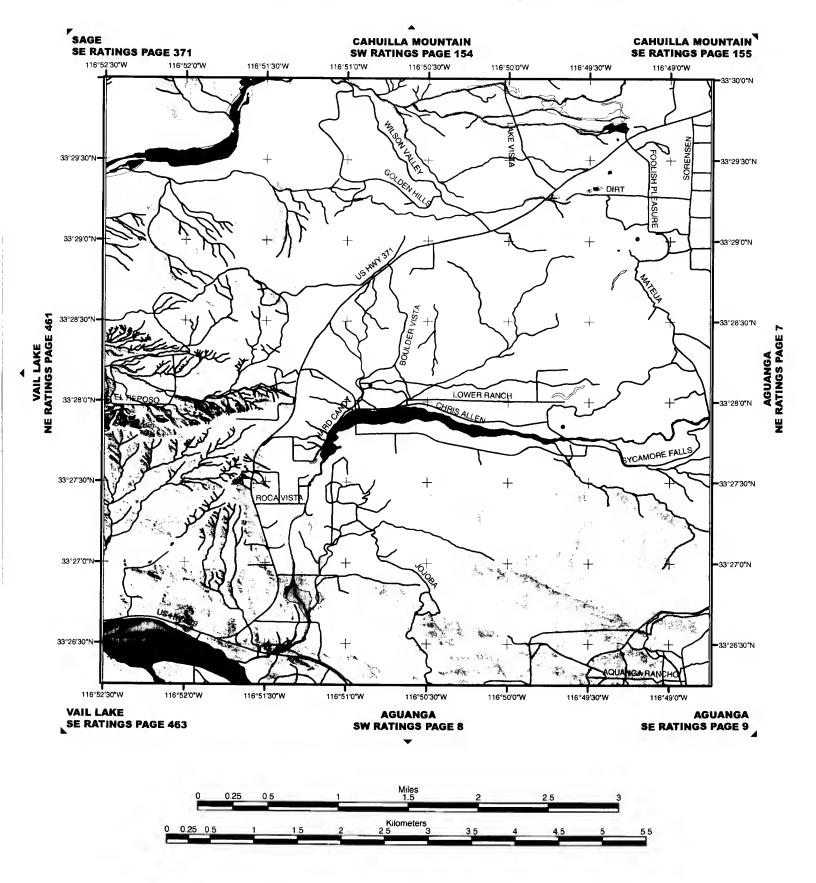
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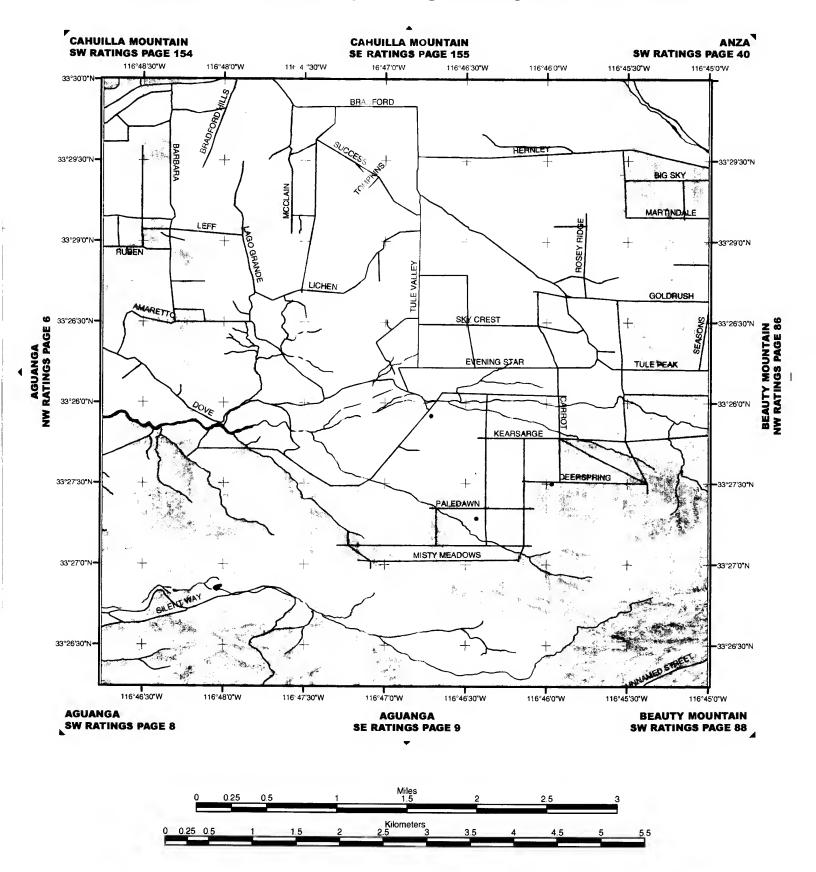
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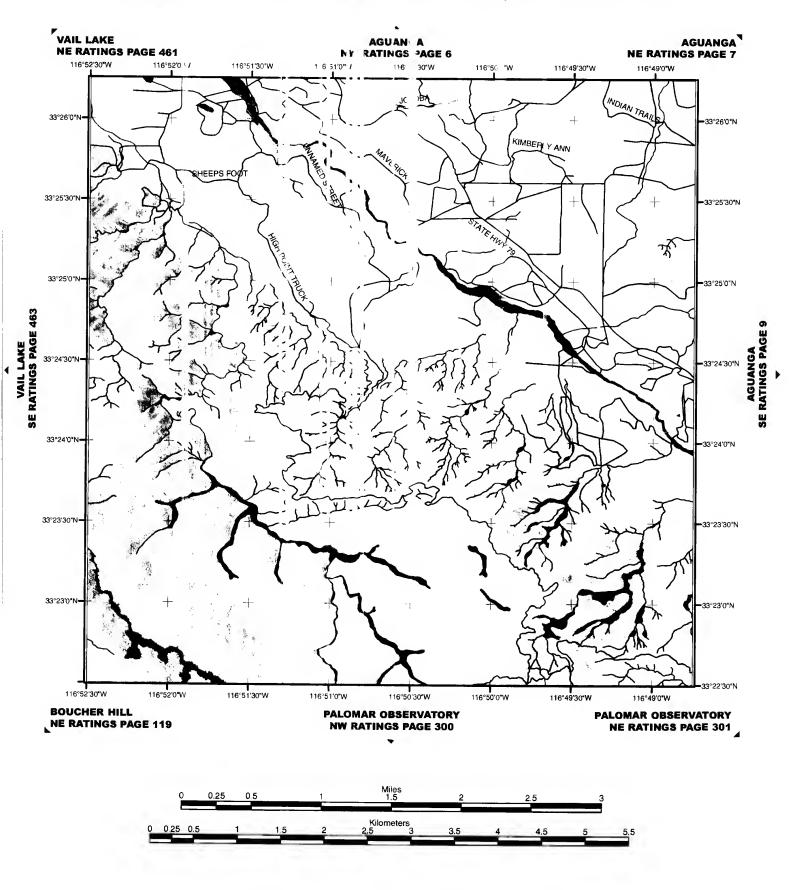
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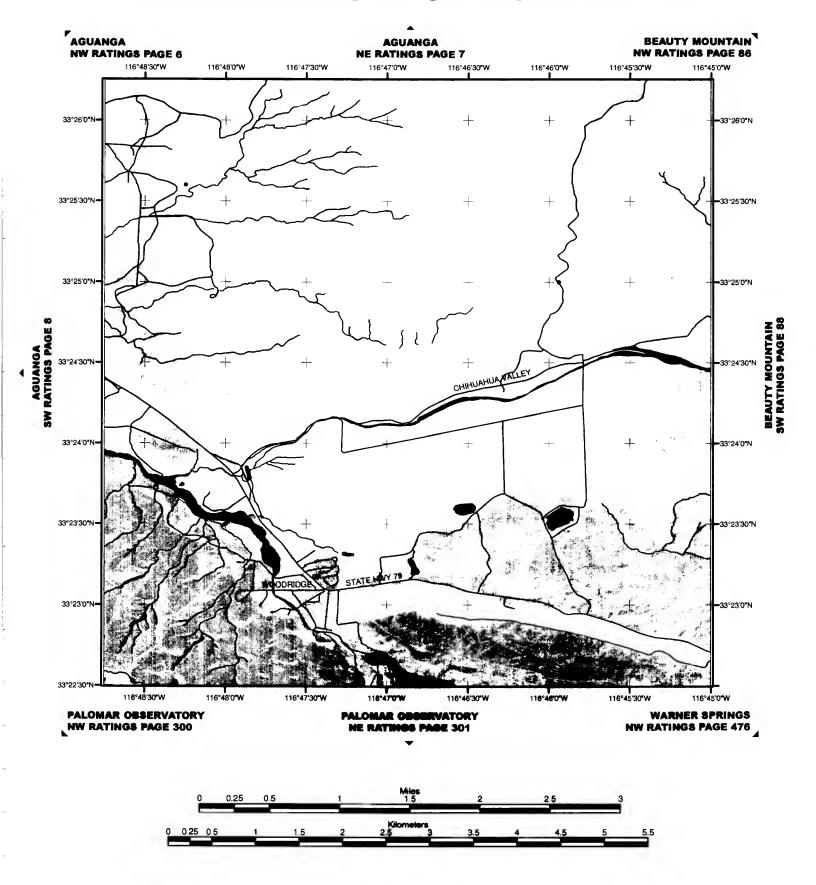
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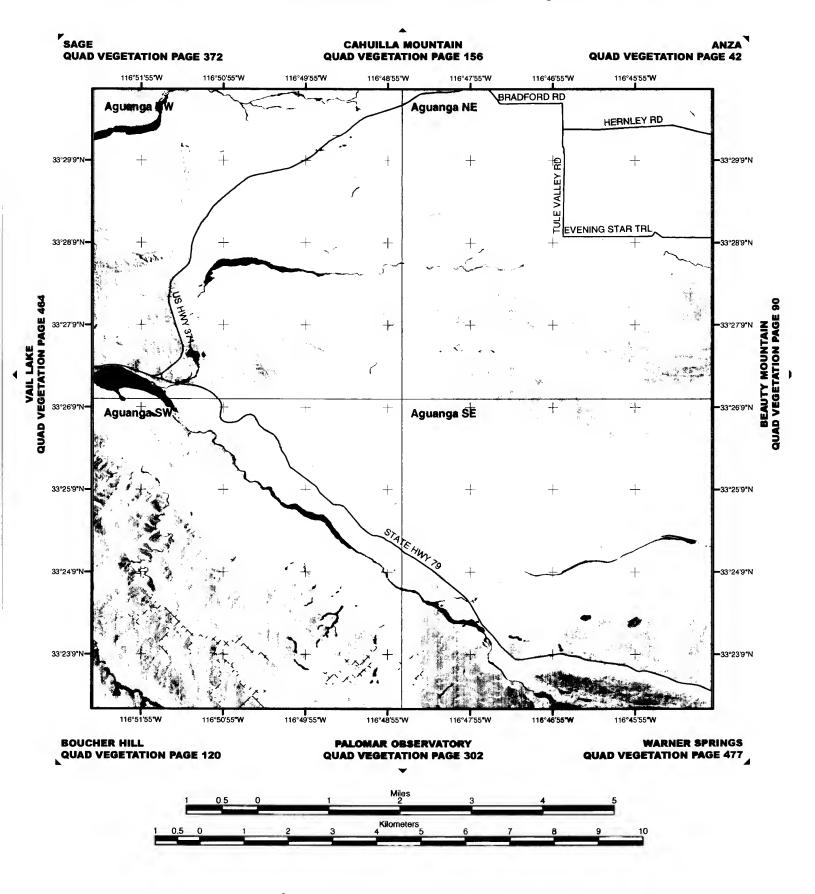
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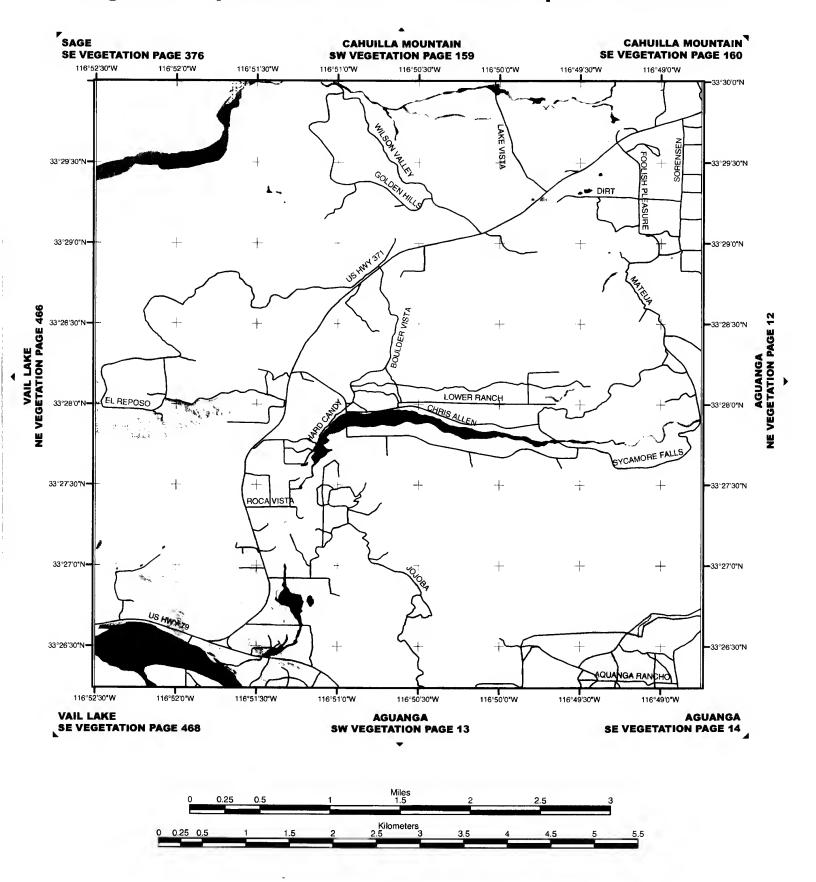
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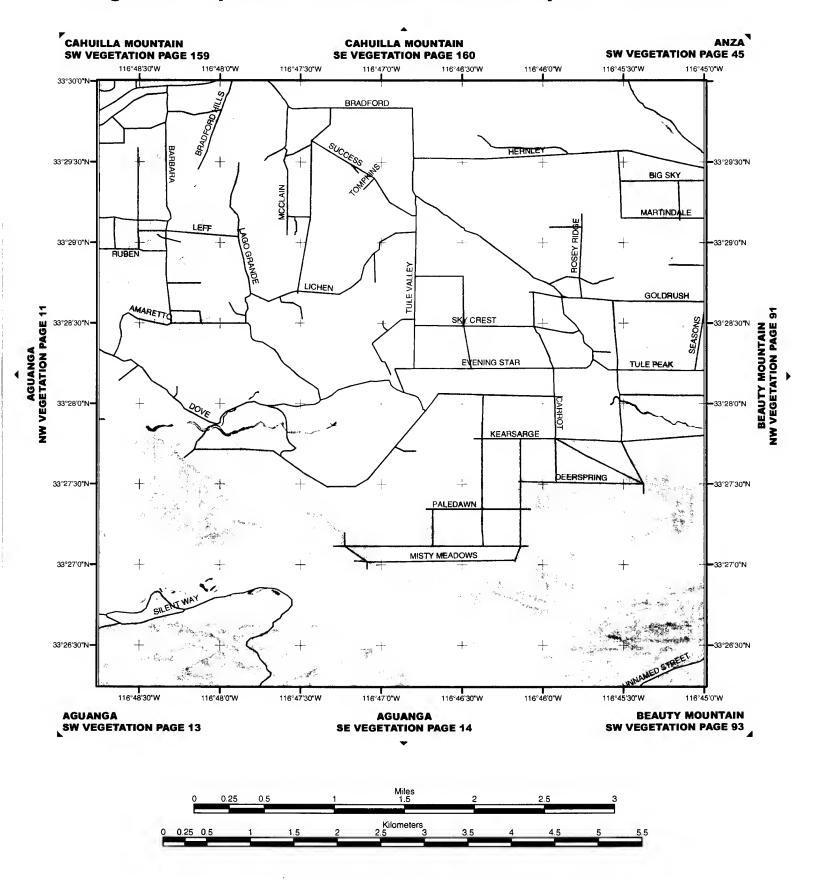
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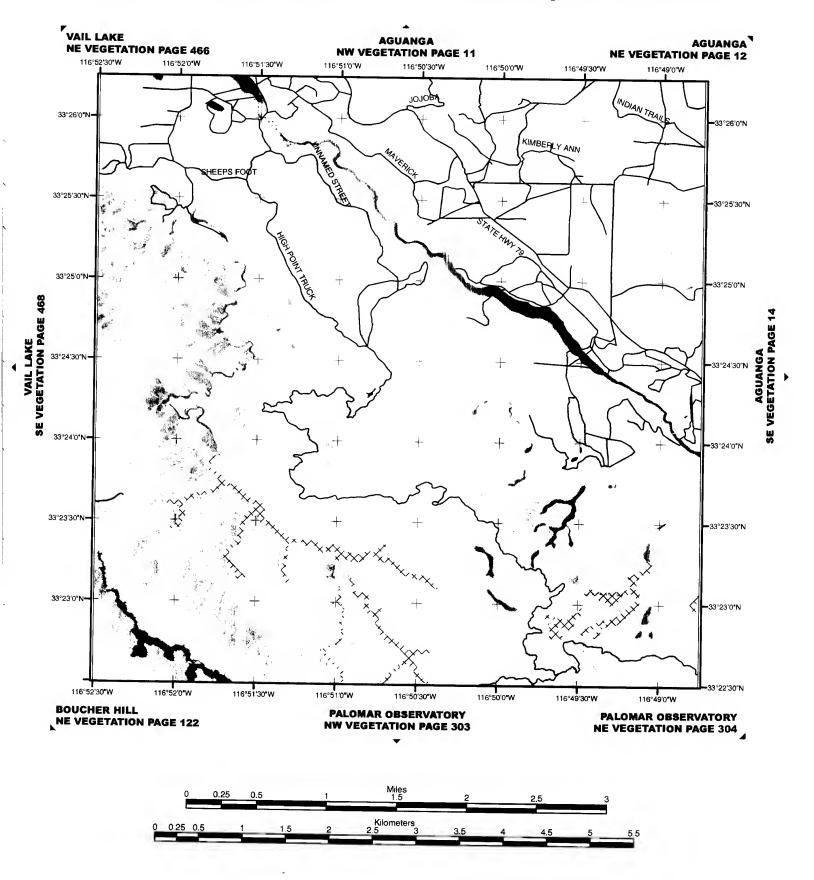
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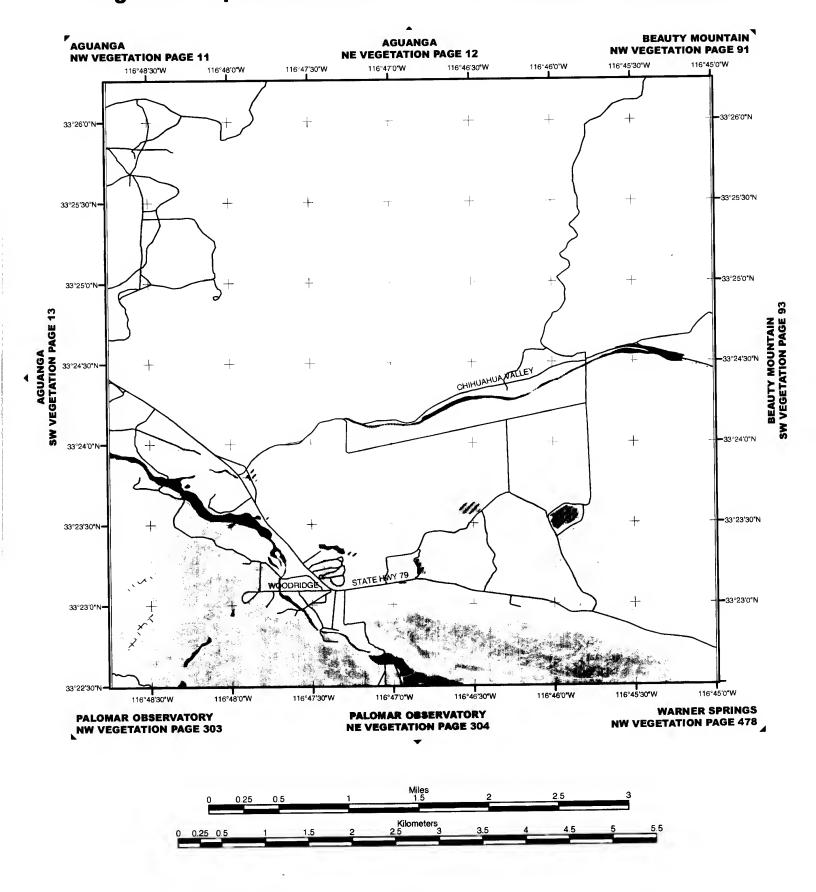
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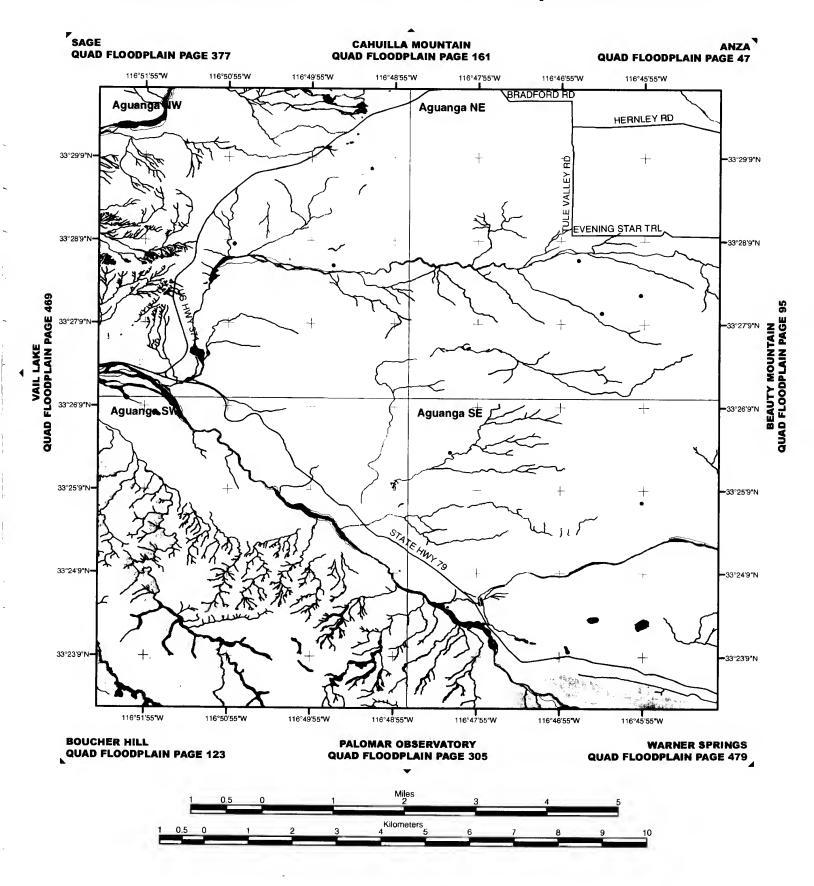
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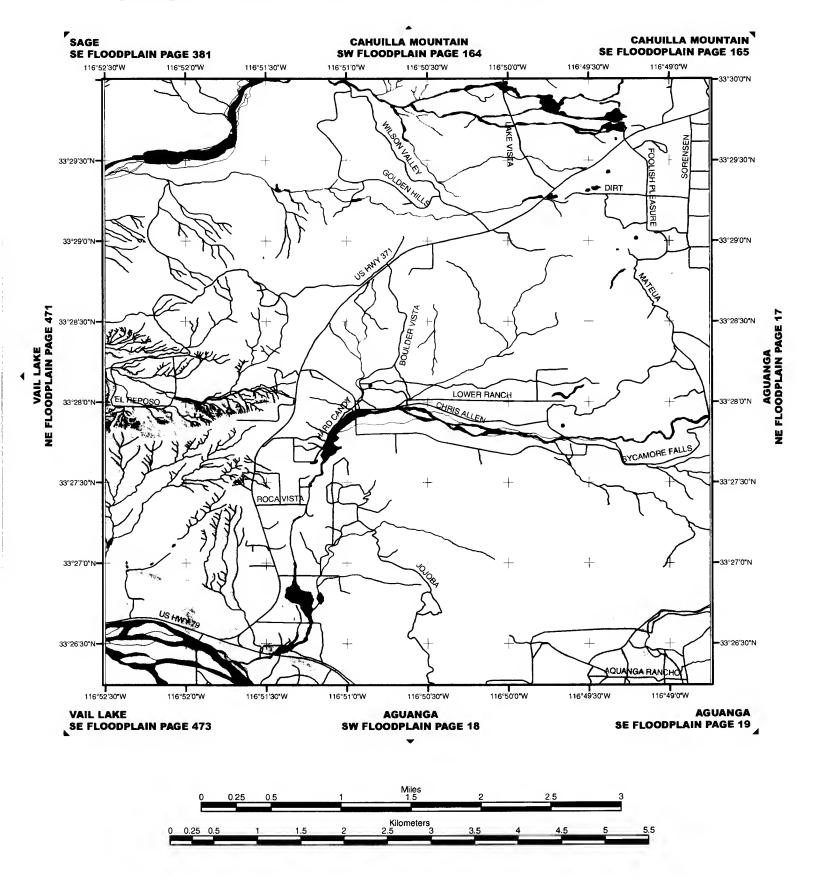
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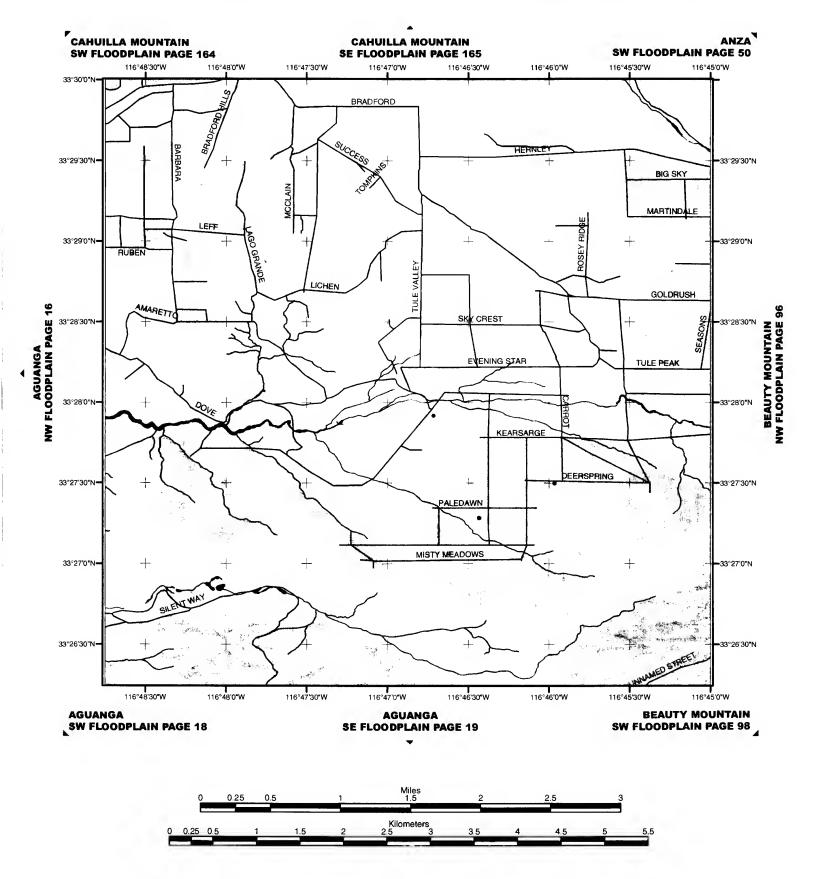
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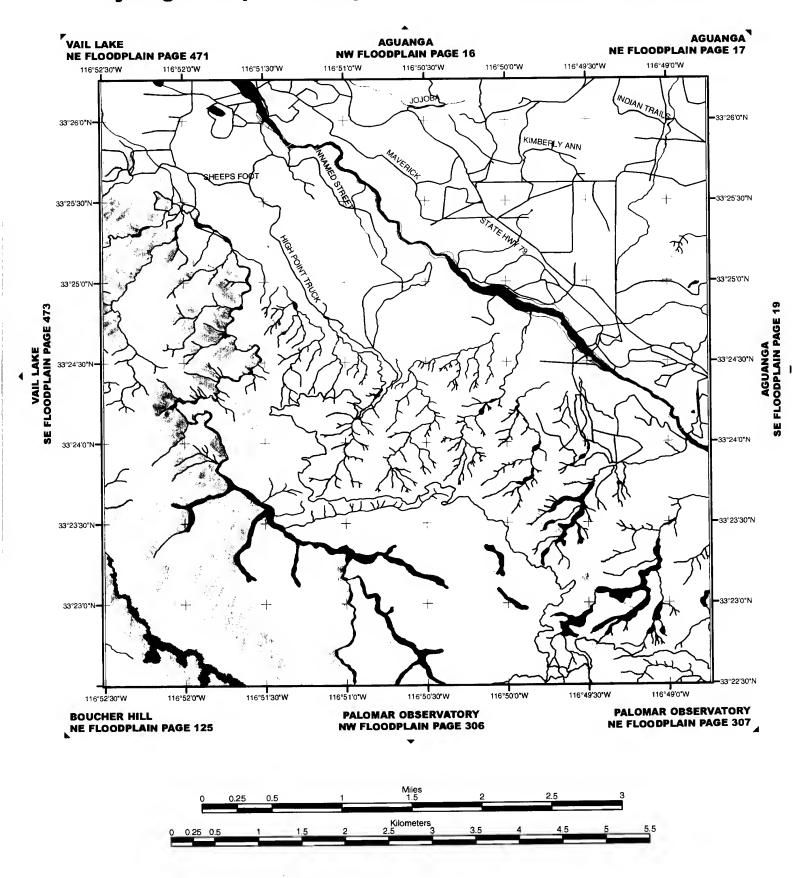
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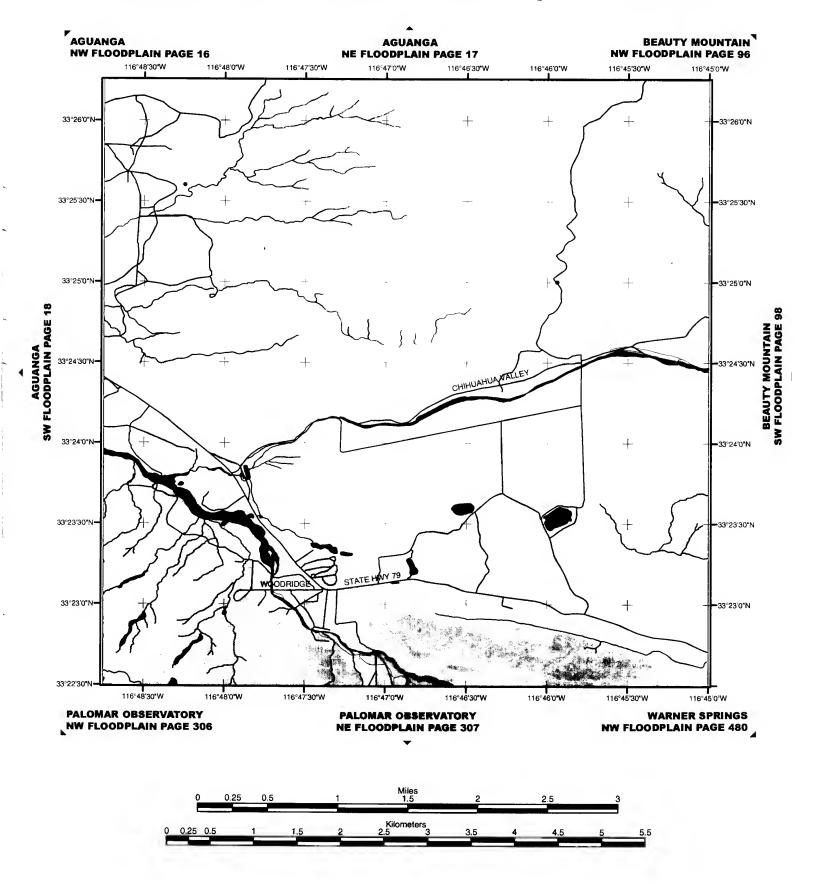
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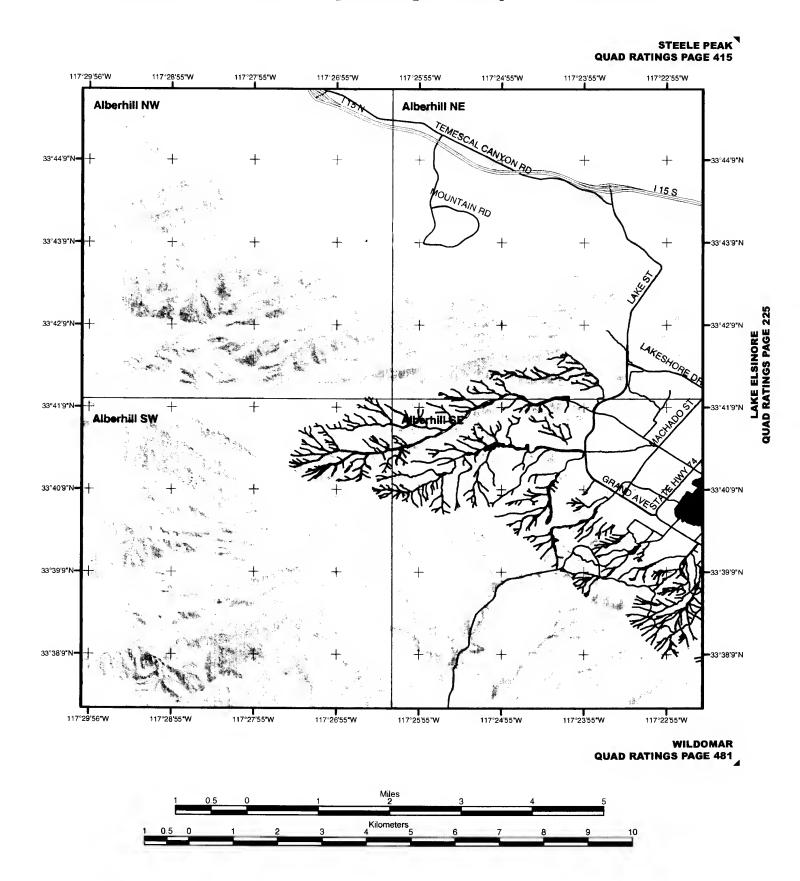
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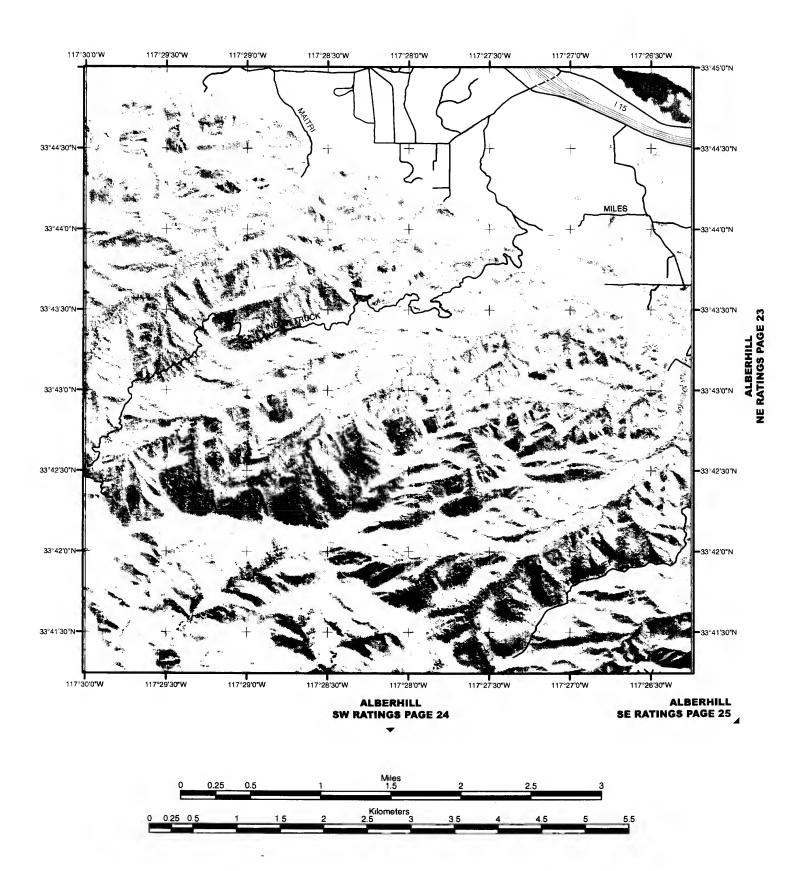
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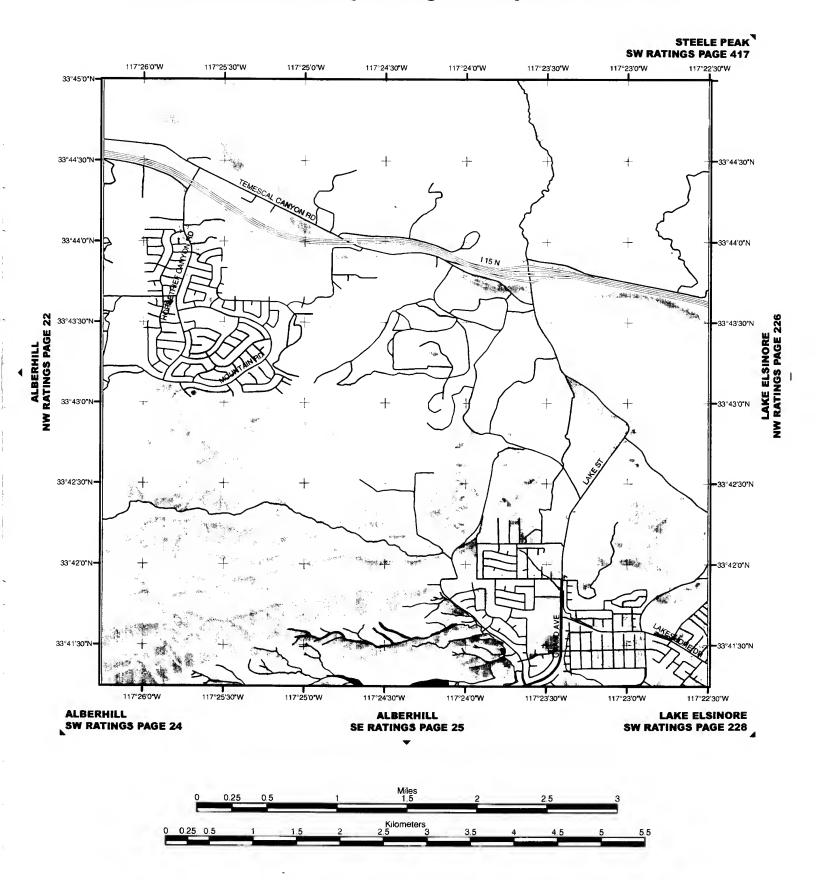
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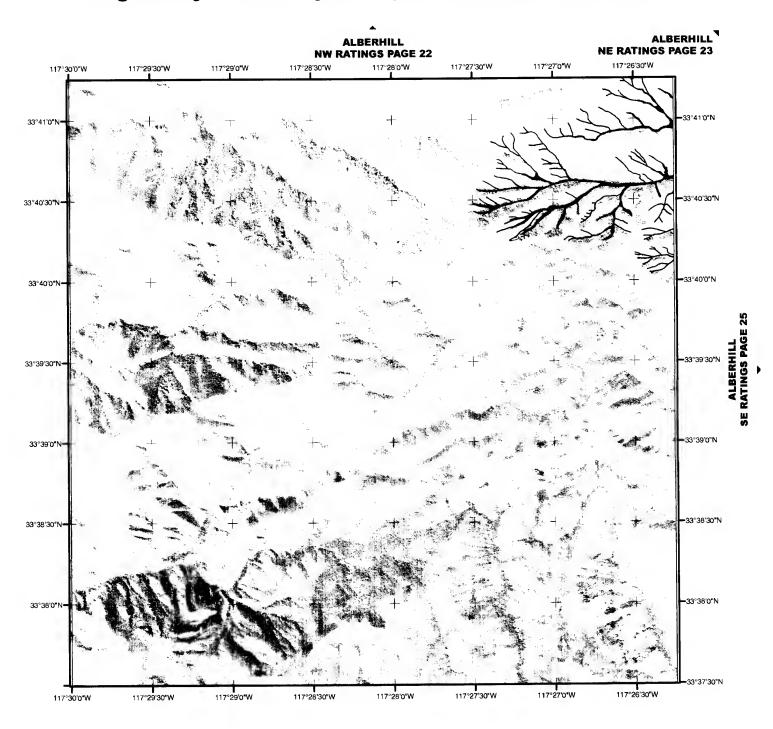
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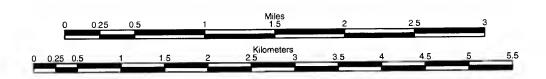


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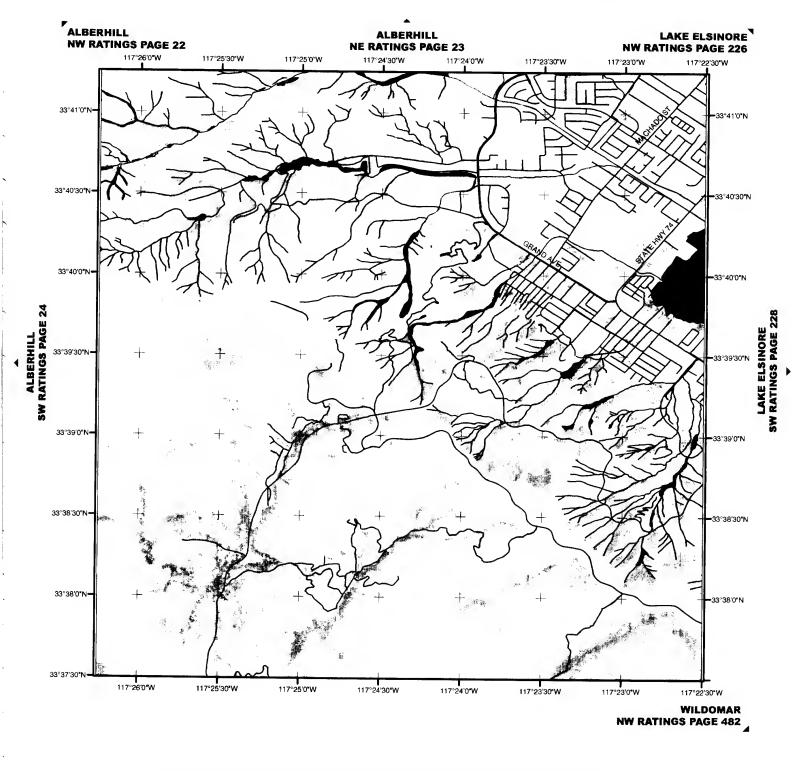


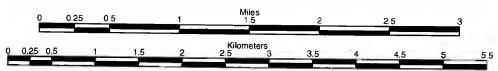
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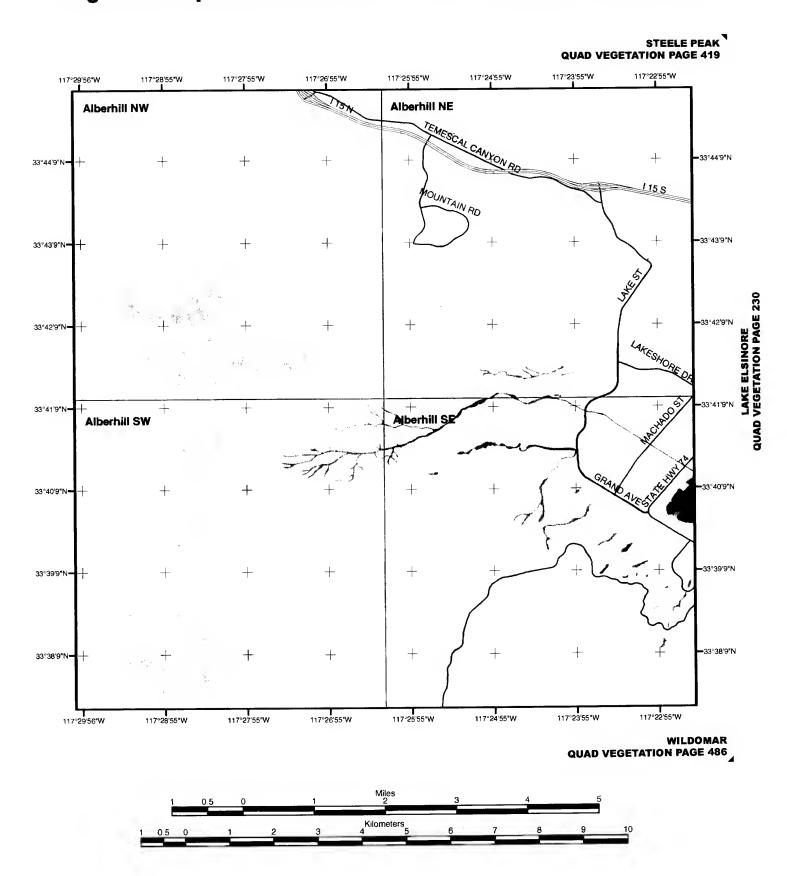


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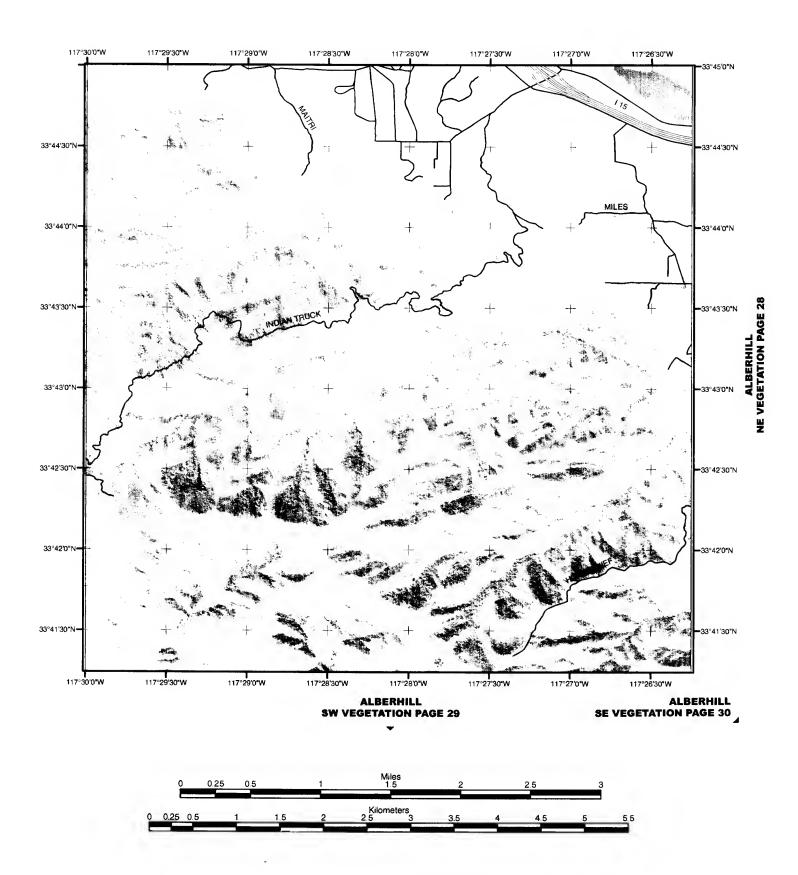




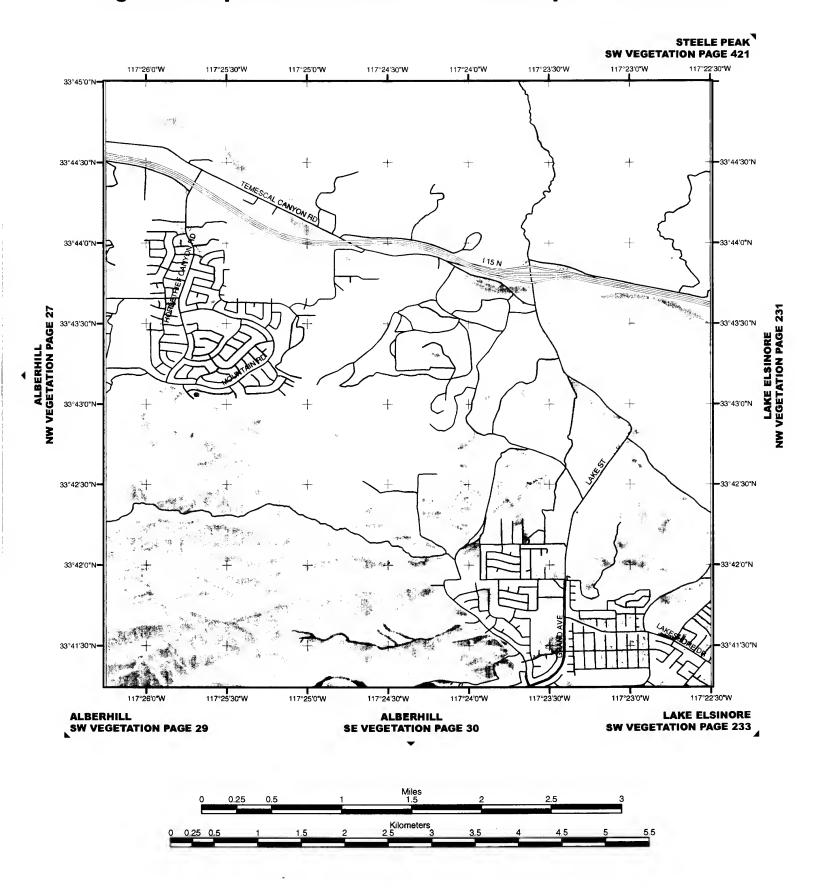
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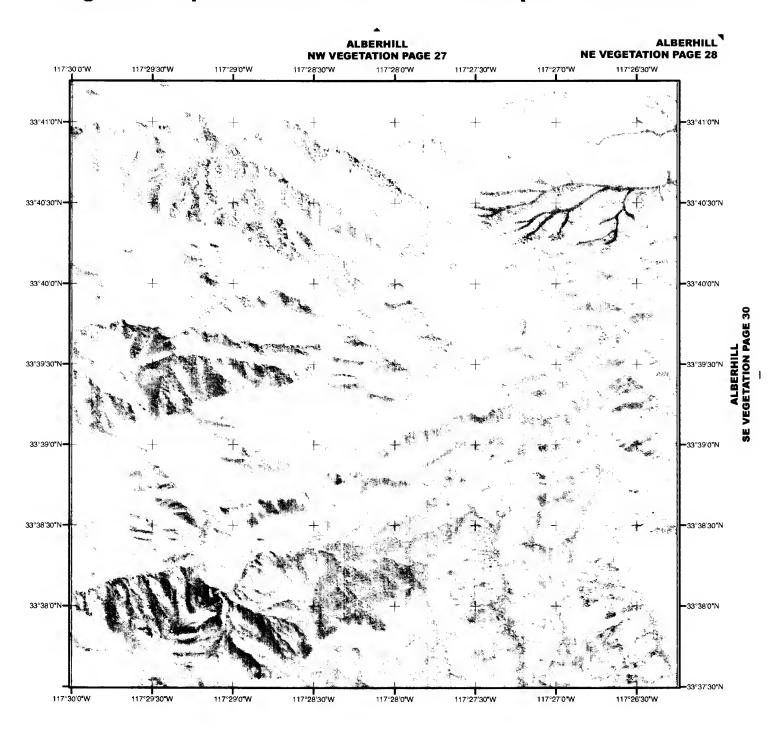
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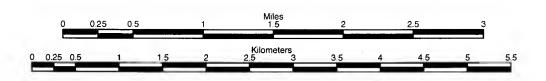


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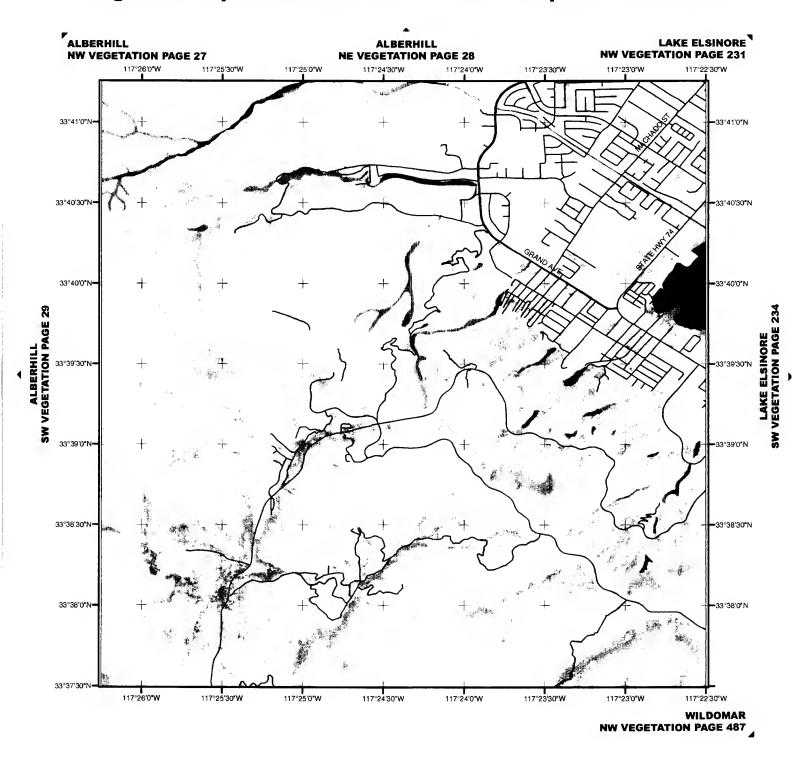


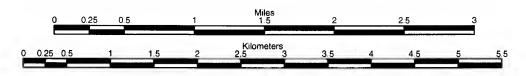
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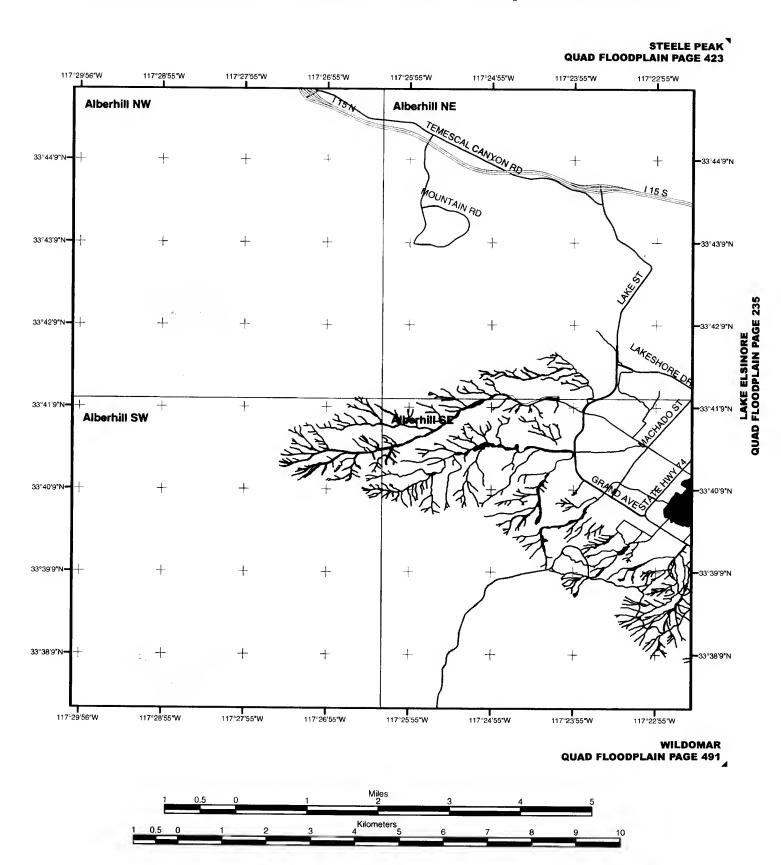


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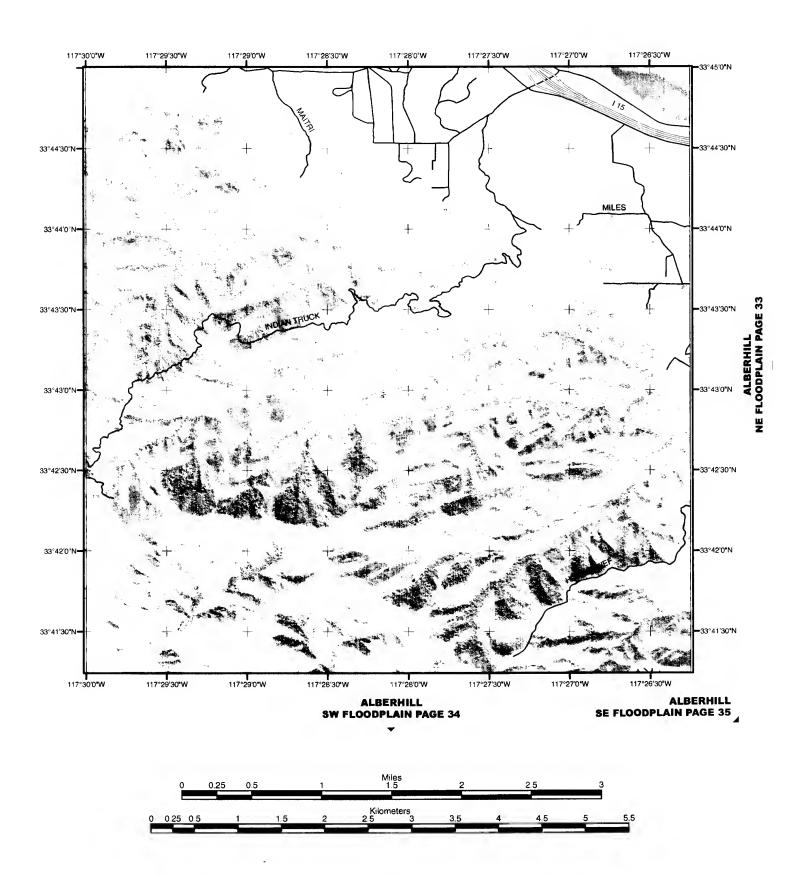




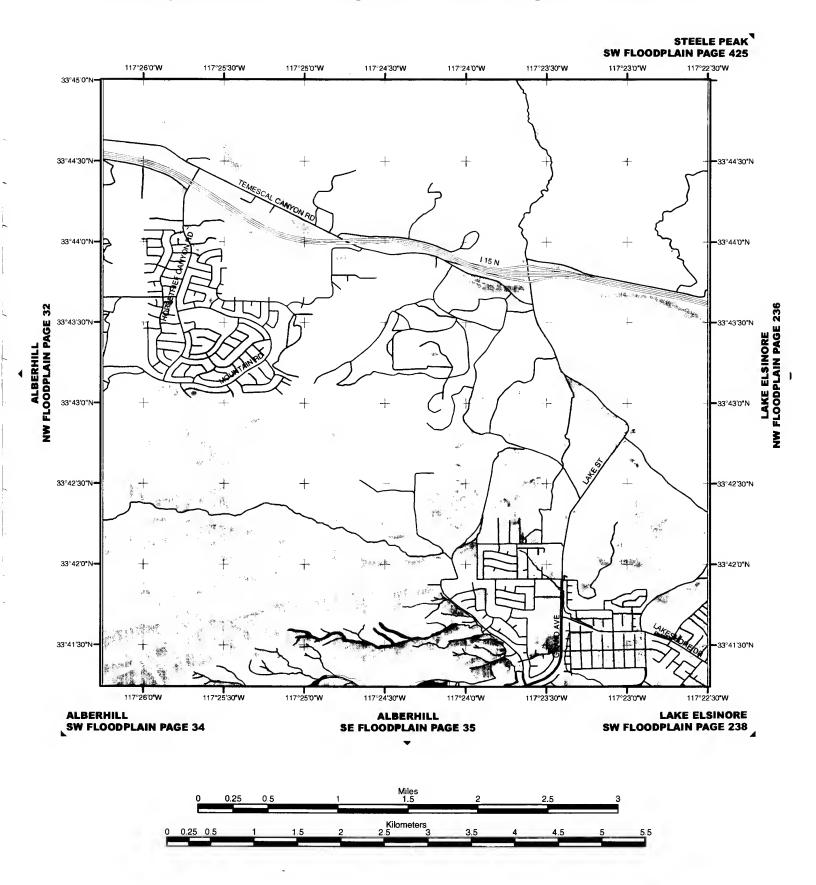
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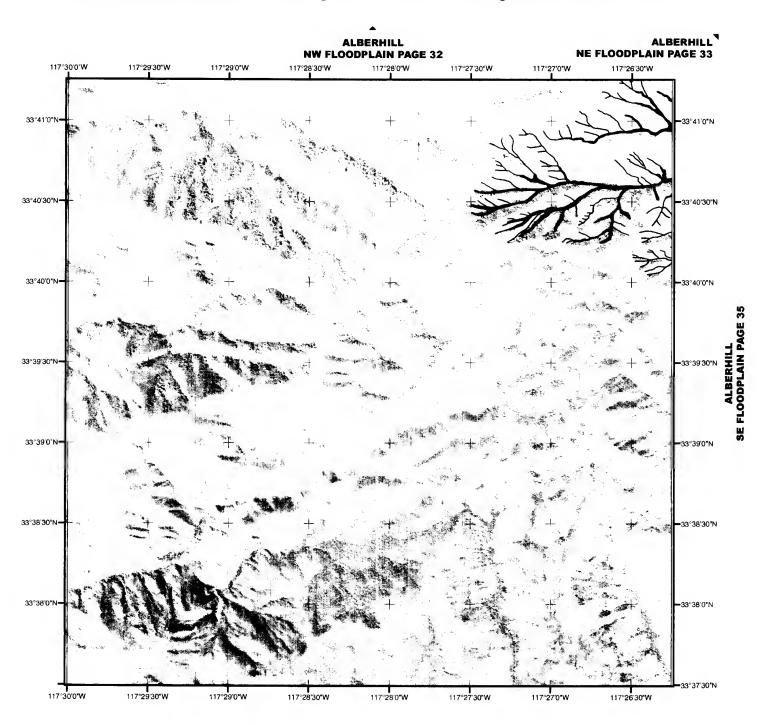
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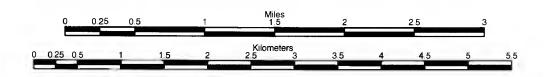


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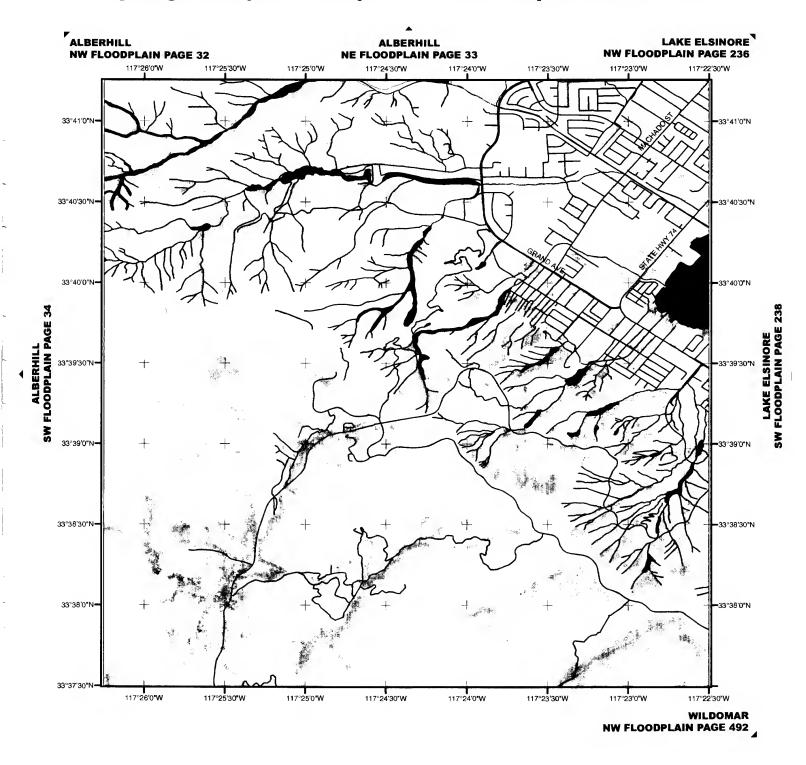


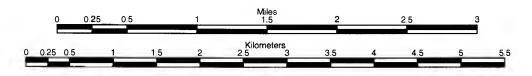
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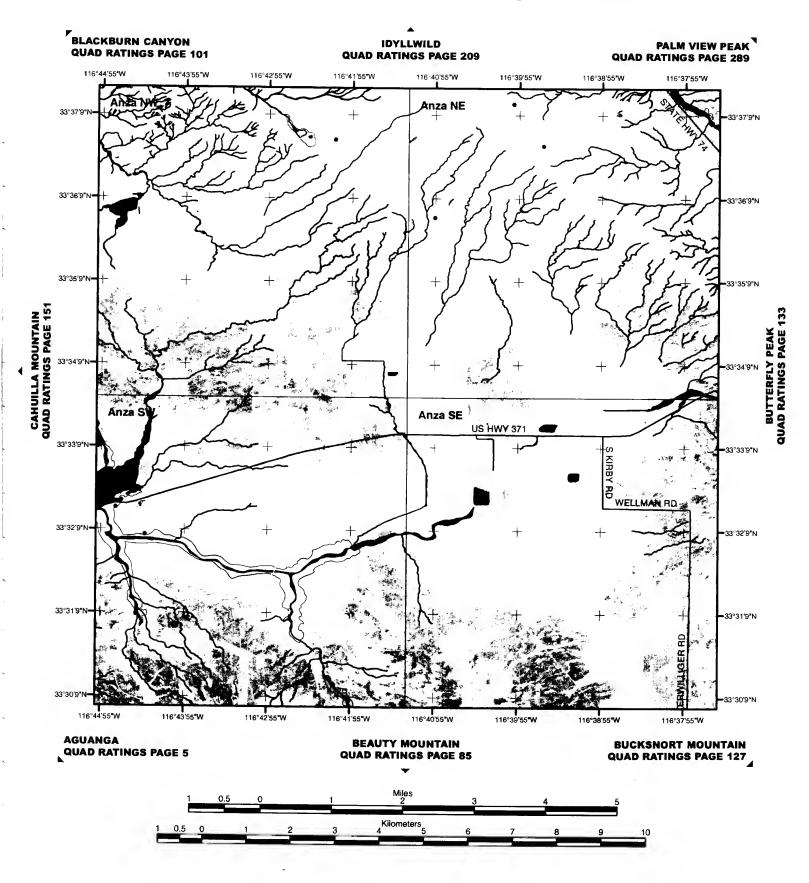


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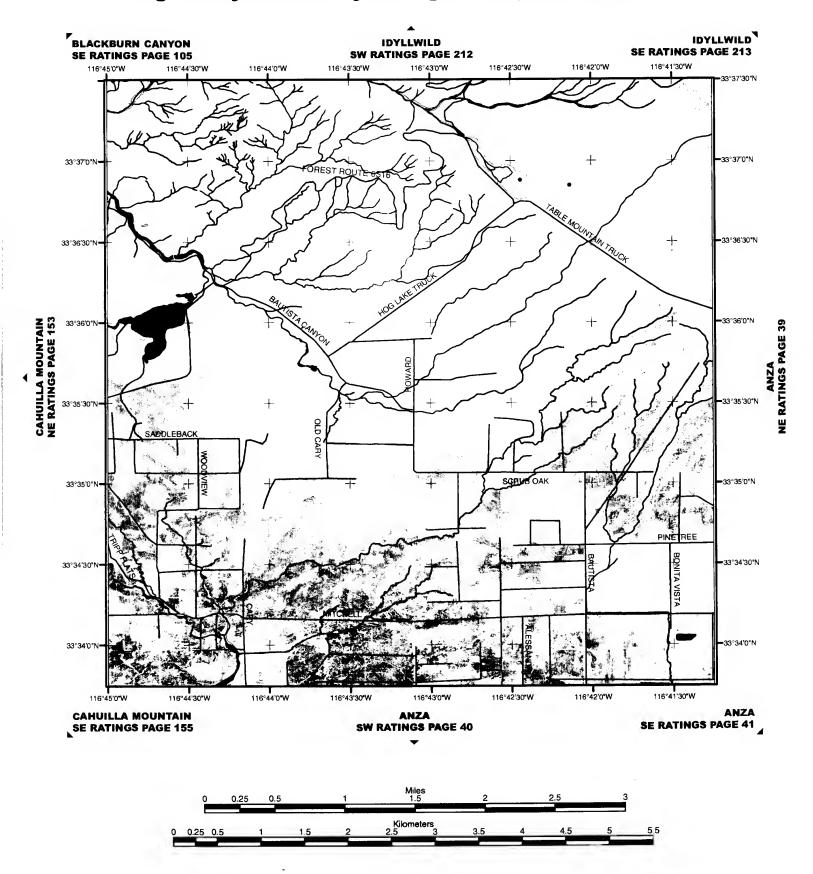




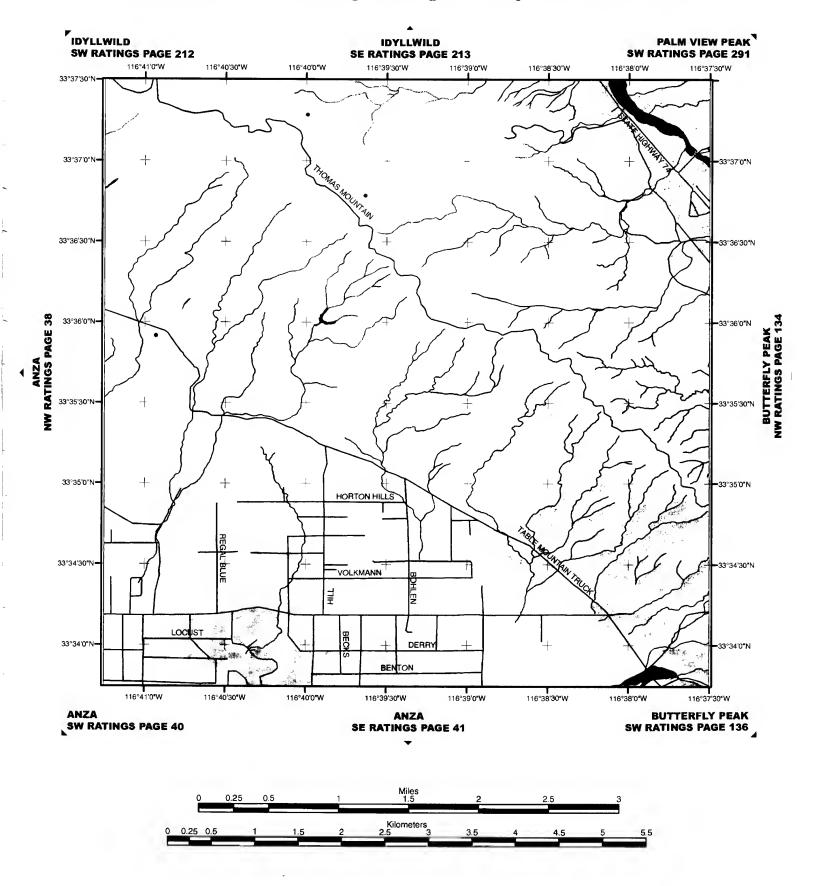
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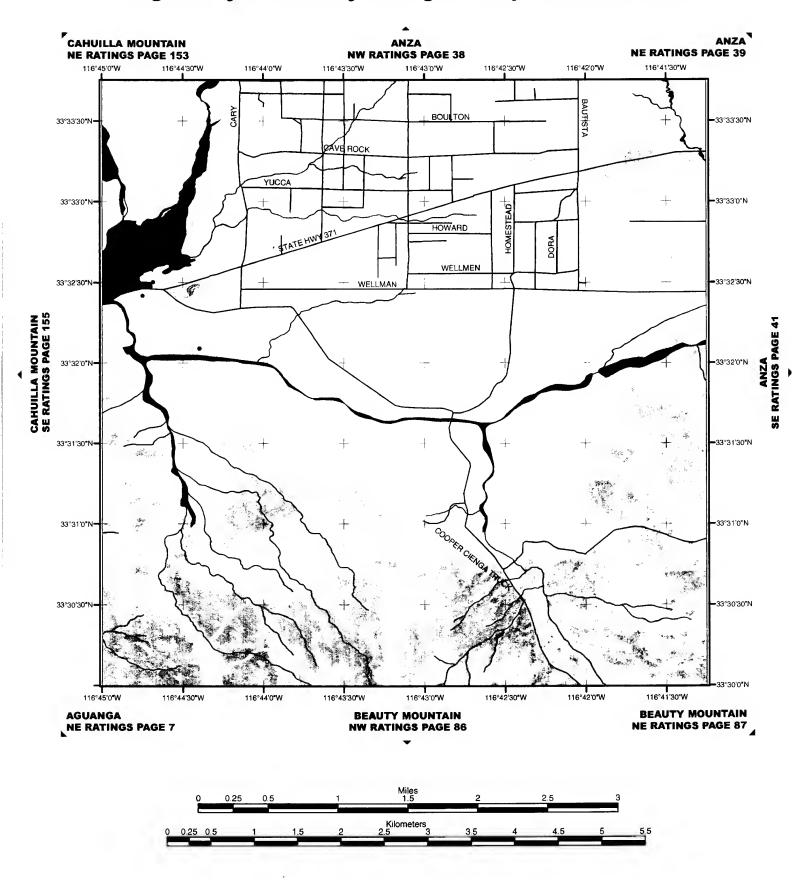
# Anza North West Quarter-Quadrangle Regulatory Probability Ratings for Aquatic Resources



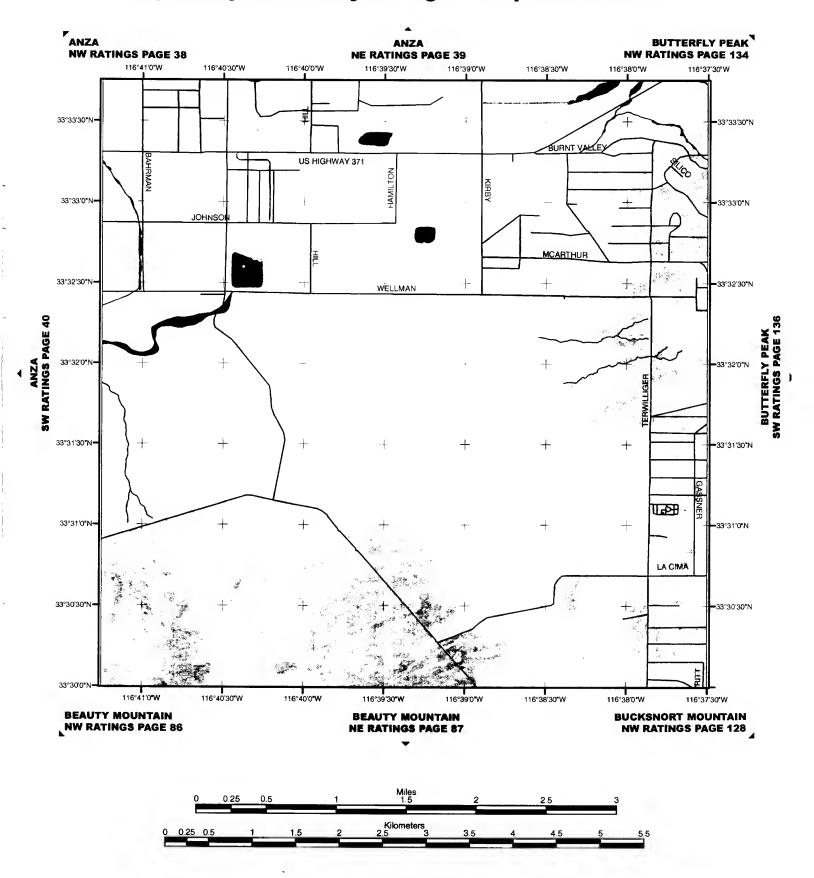
# Anza North East Quarter-Quadrangle Regulatory Probability Ratings for Aquatic Resources



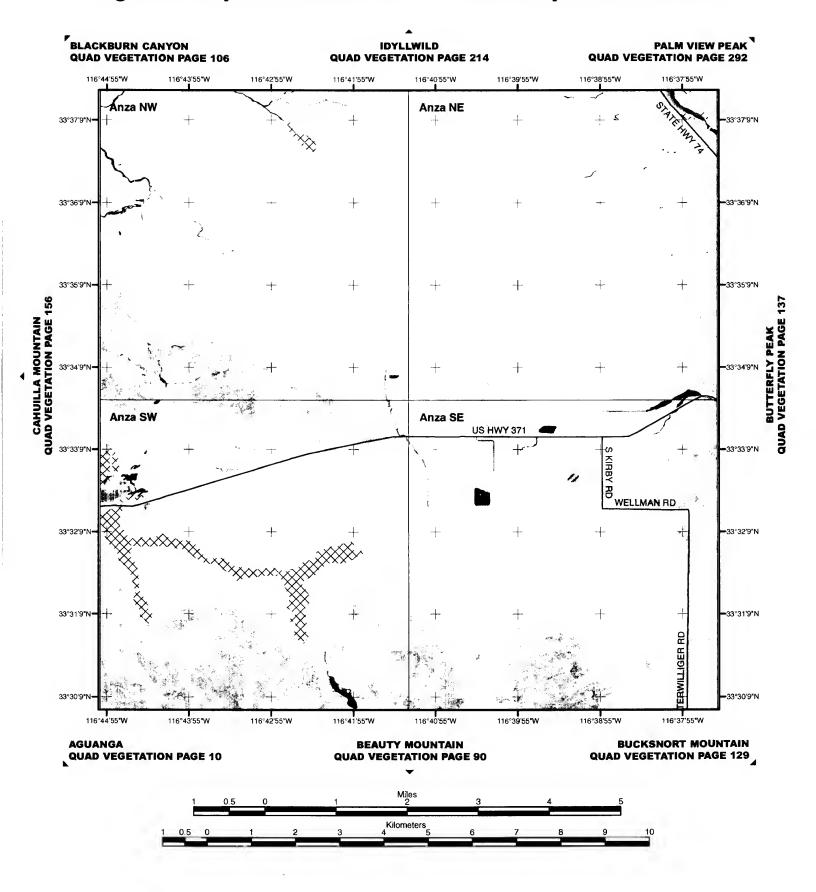
## Anza South West Quarter-Quadrangle Regulatory Probability Ratings for Aquatic Resources



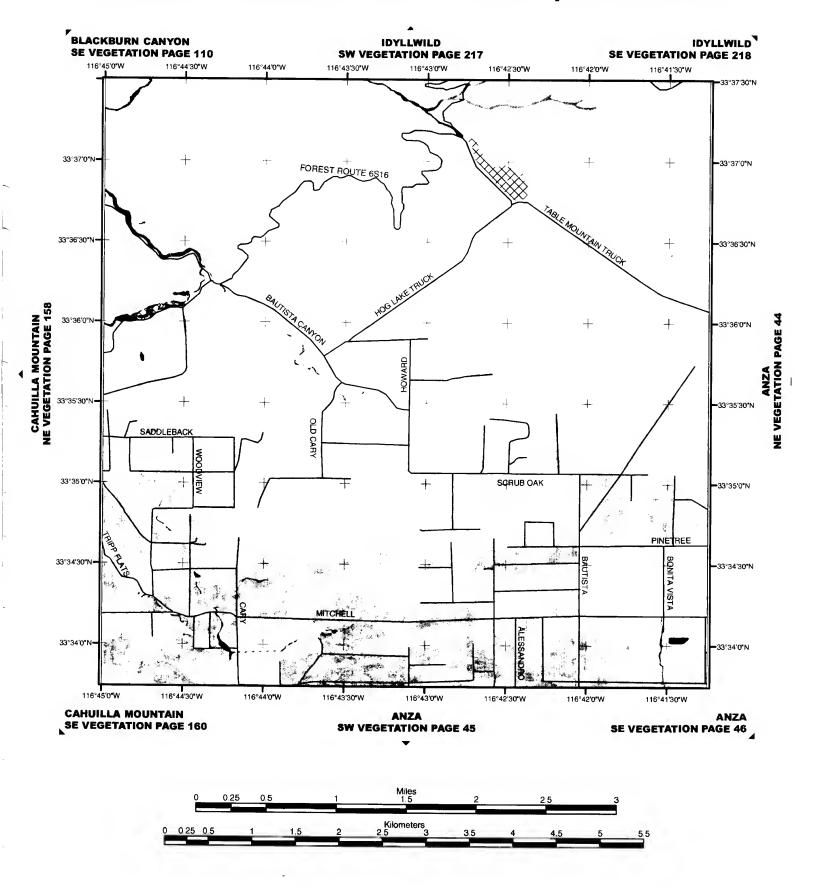
## Anza South East Quarter-Quadrangle Regulatory Probability Ratings for Aquatic Resources



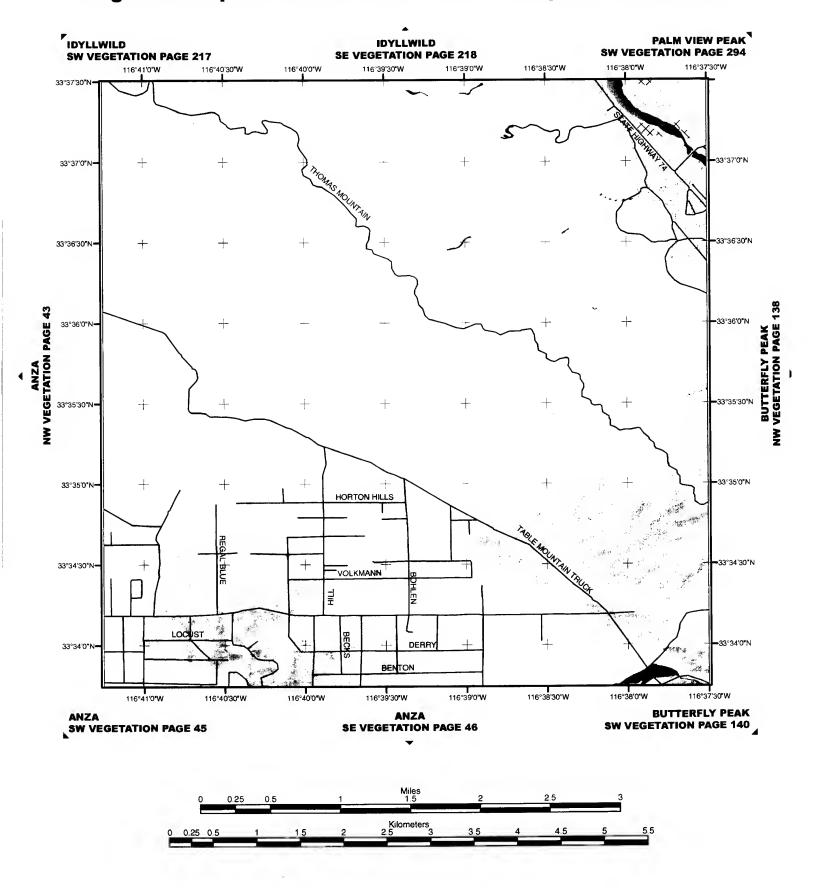
## Anza Quadrangle Vegetation Species Association Units for Aquatic Resources



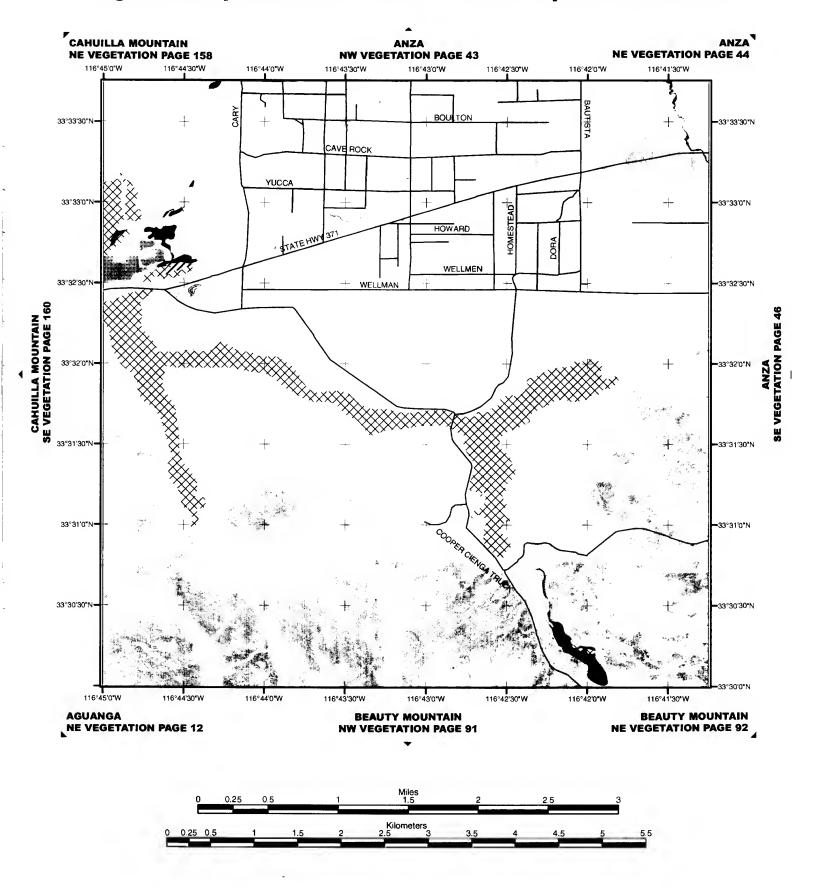
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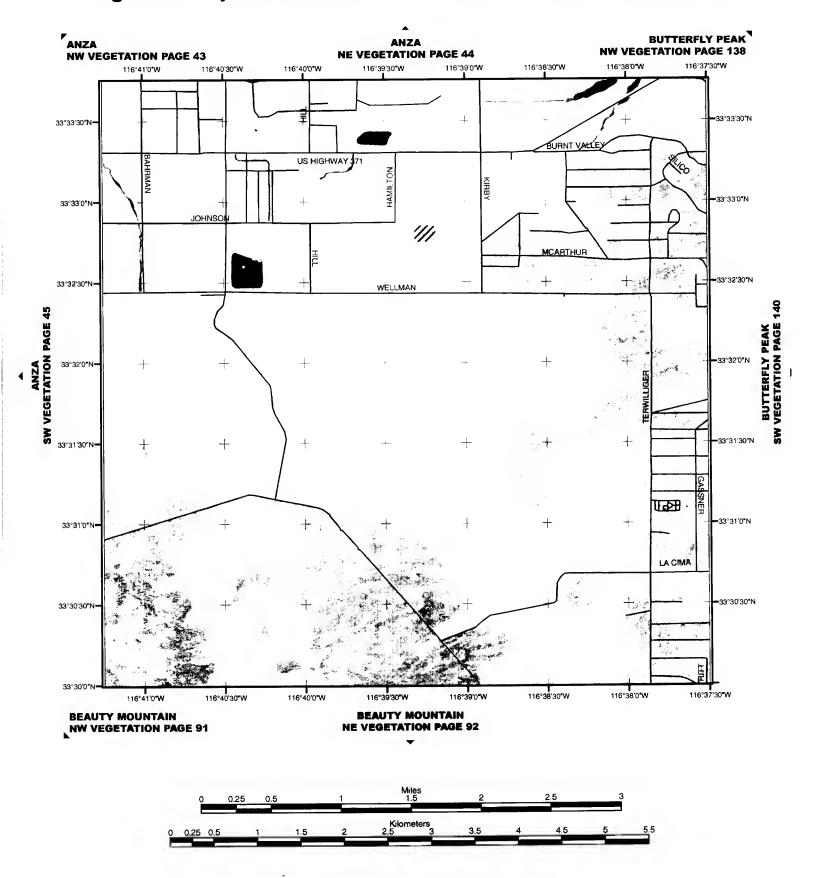
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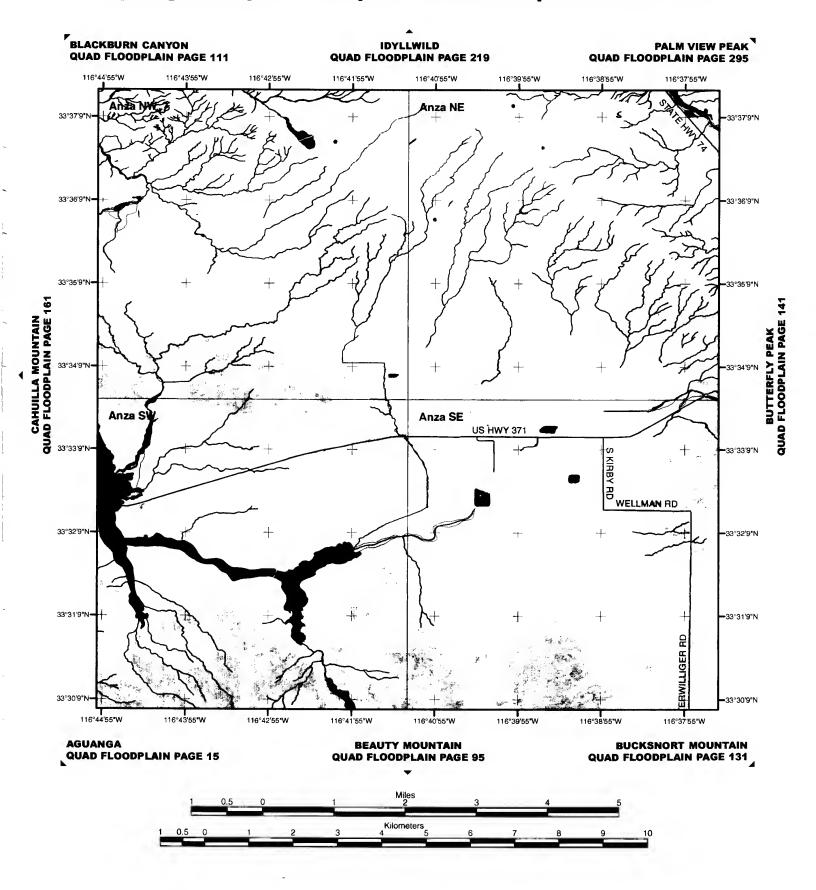
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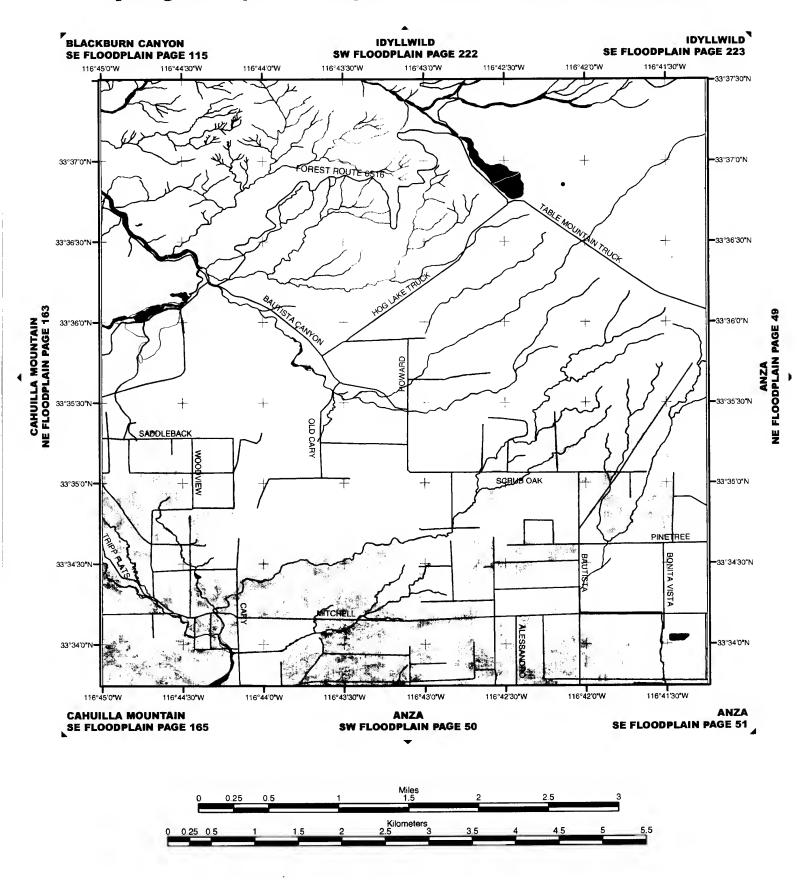
# Anza South East Quarter-Quadrangle Vegetation Species Association Units for Aquatic Resources



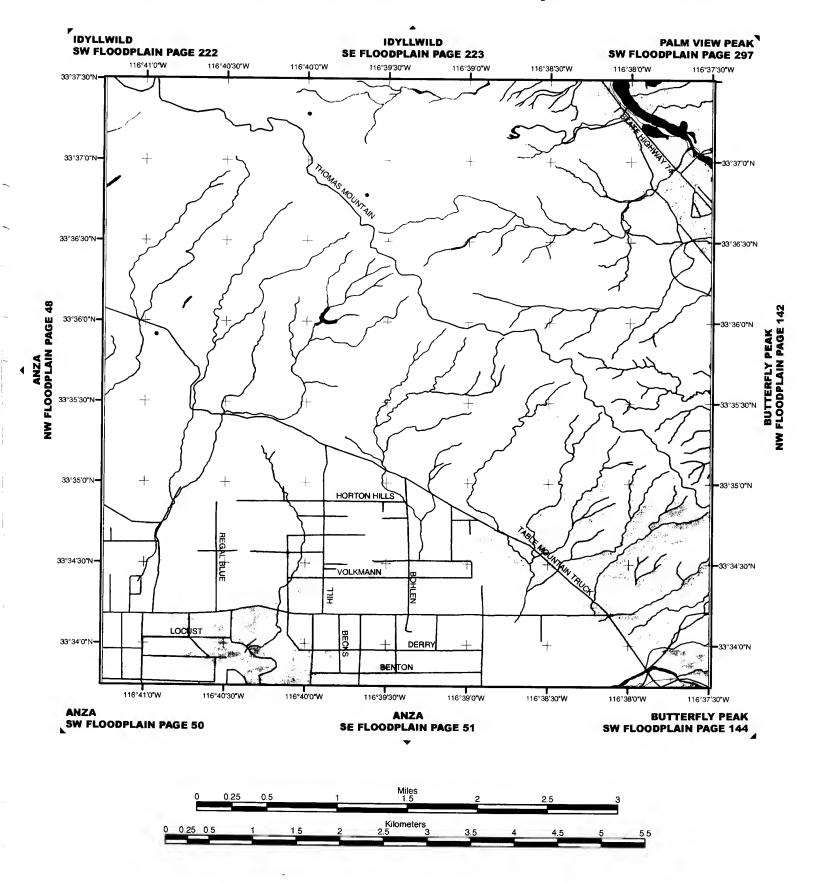
## Anza Quadrangle Hydrogeomorphic Floodplain Units for Aquatic Resources



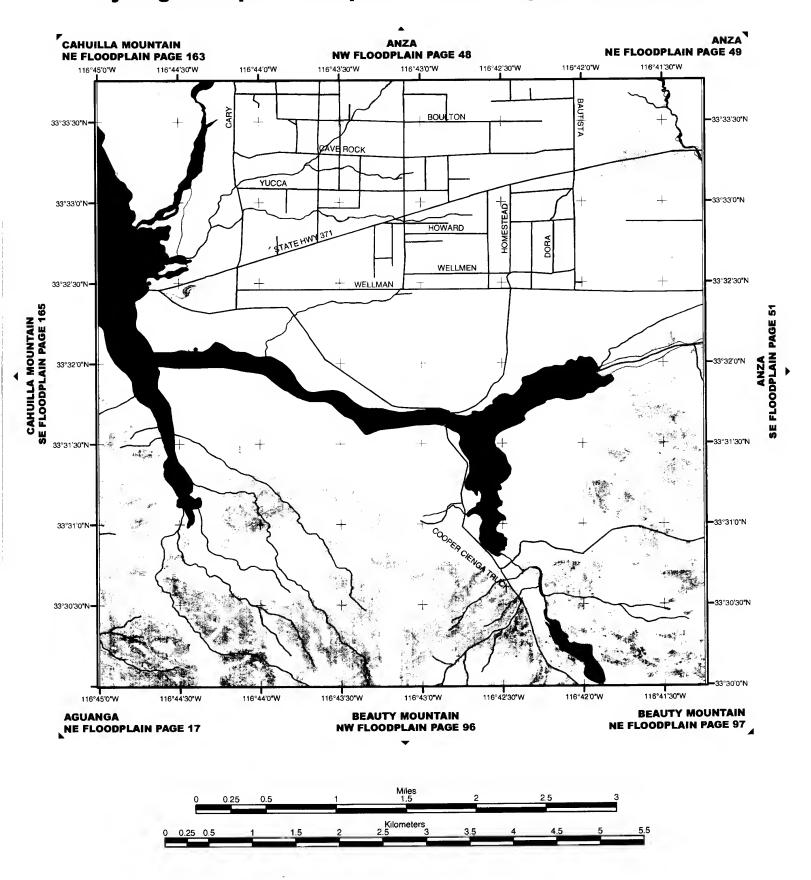
## Anza North West Quarter-Quadrangle Hydrogeomorphic Floodplain Units for Aquatic Resources



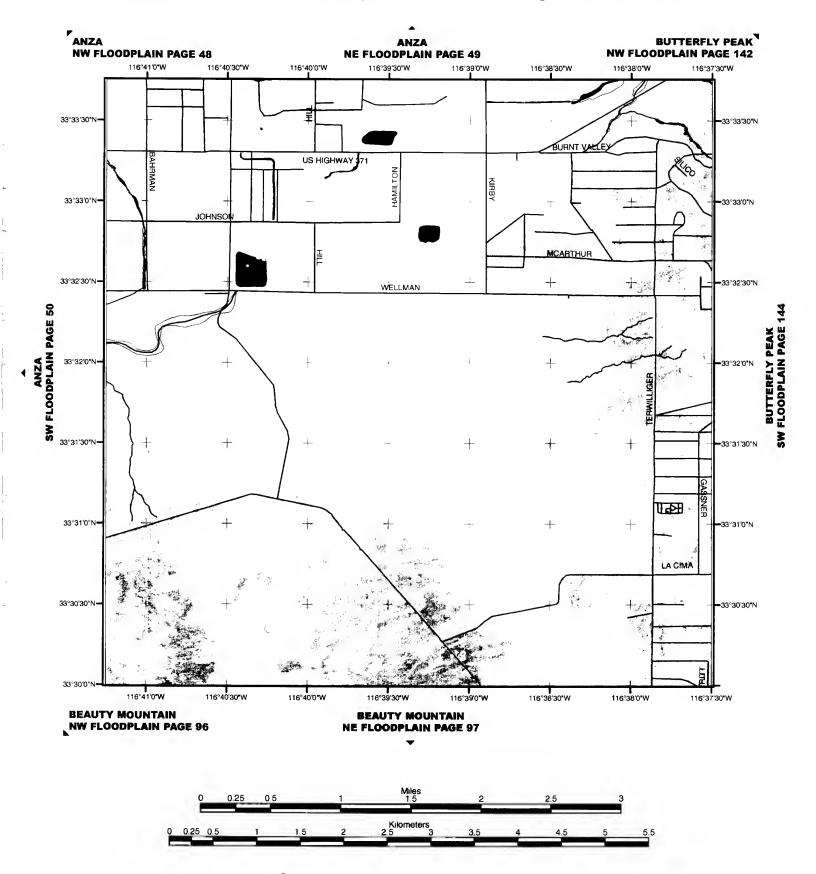
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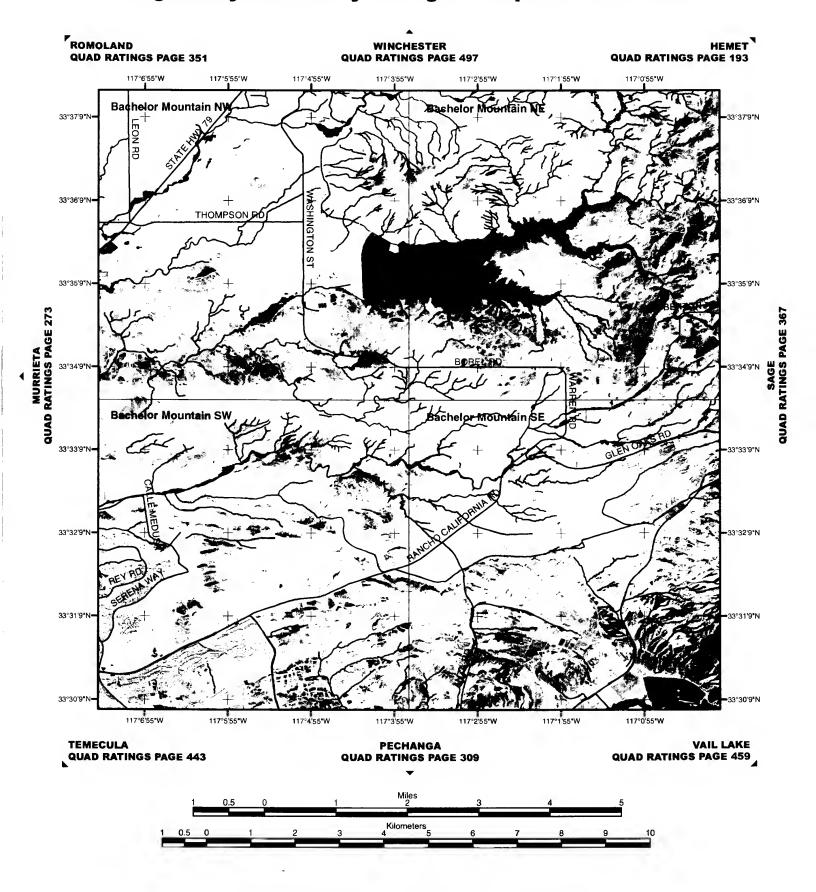
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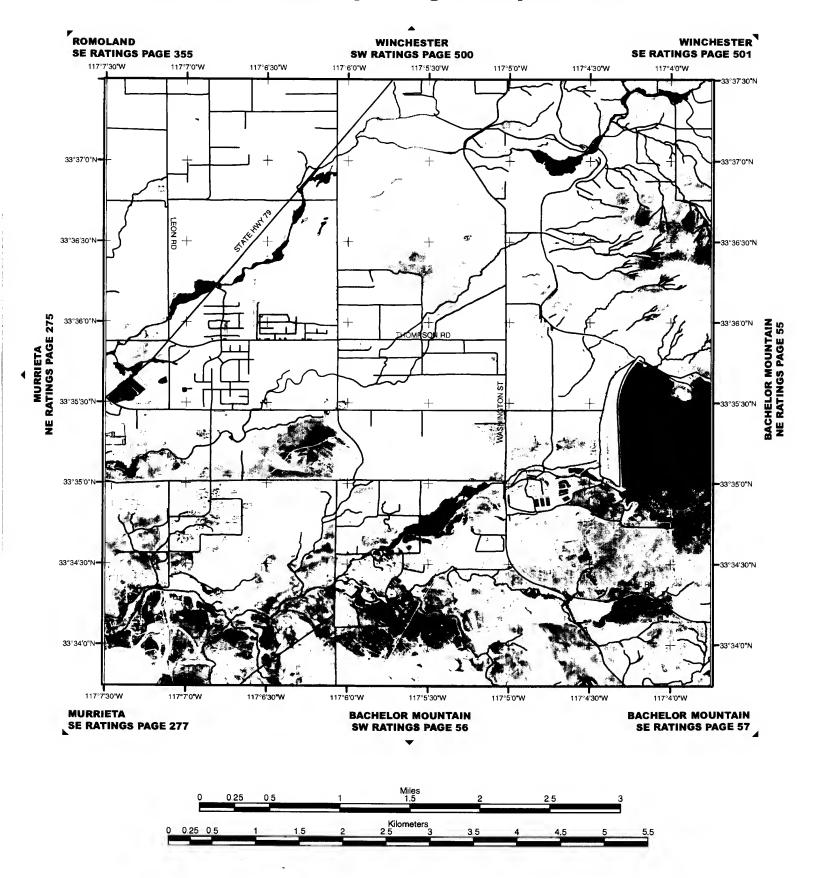
# Anza South East Quarter-Quadrangle Hydrogeomorphic Floodplain Units for Aquatic Resources



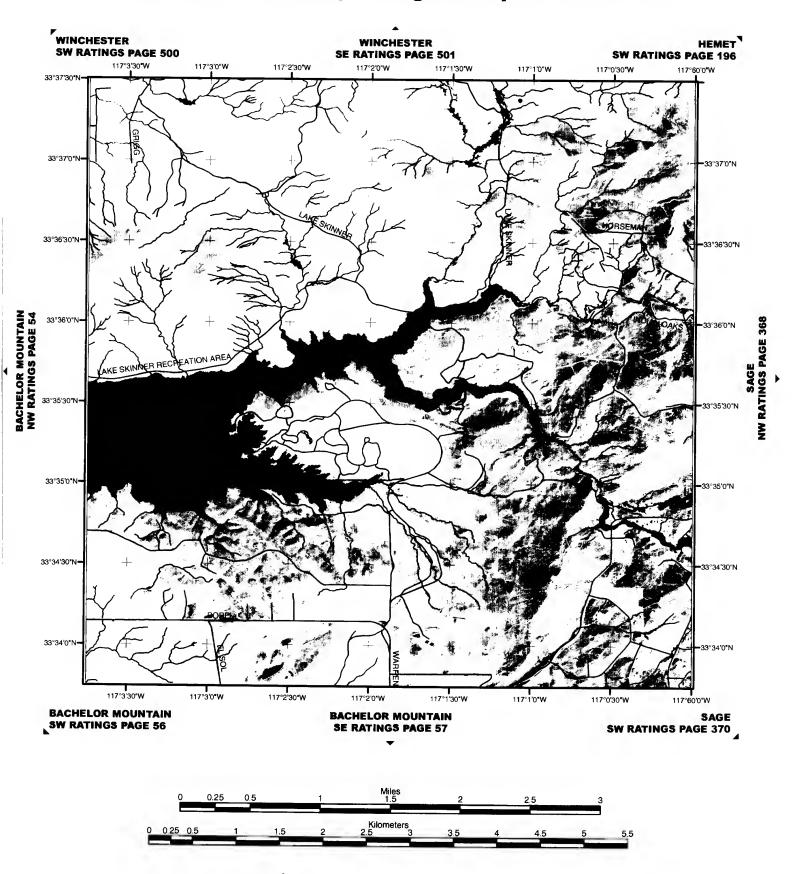
#### Bachelor Mountain Quadrangle Regulatory Probability Ratings for Aquatic Resources



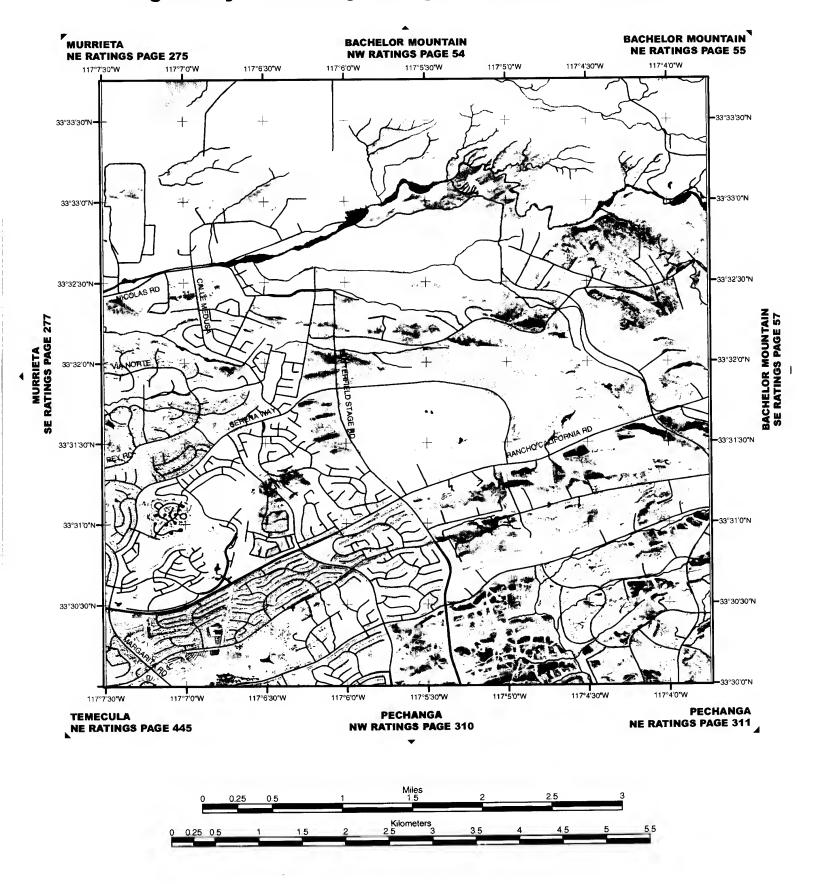
## **Bachelor Mountain North West Quarter-Quadrangle Regulatory Probability Ratings for Aquatic Resources**



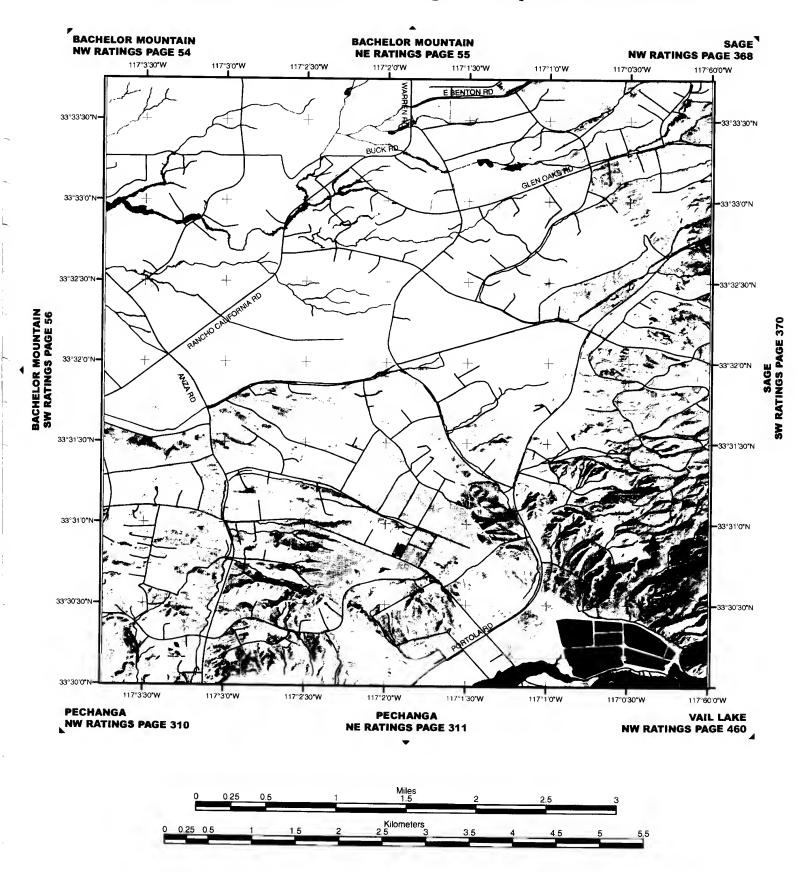
# **Bachelor Mountain North East Quarter-Quadrangle Regulatory Probability Ratings for Aquatic Resources**



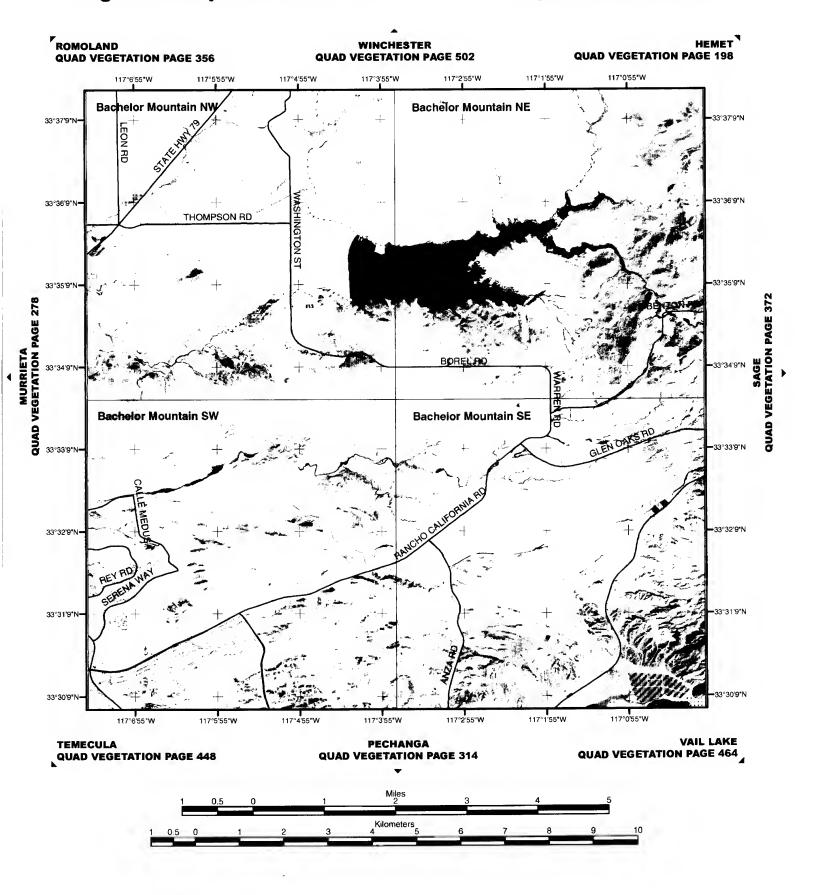
### Bachelor Mountain South West Quarter-Quadrangle Regulatory Probability Ratings for Aquatic Resources



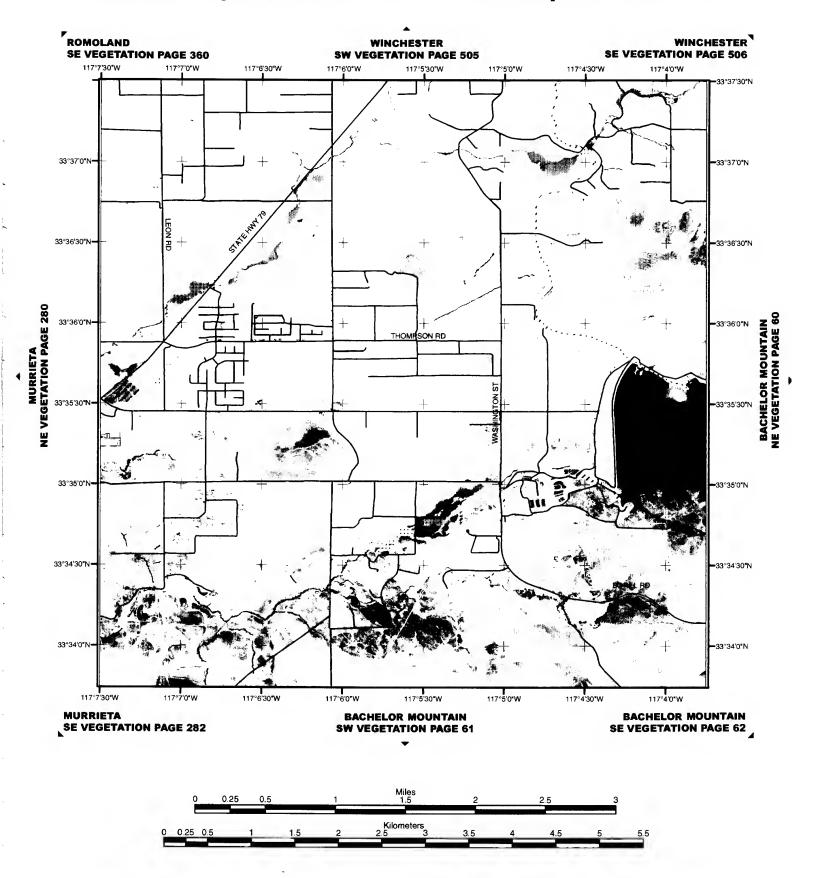
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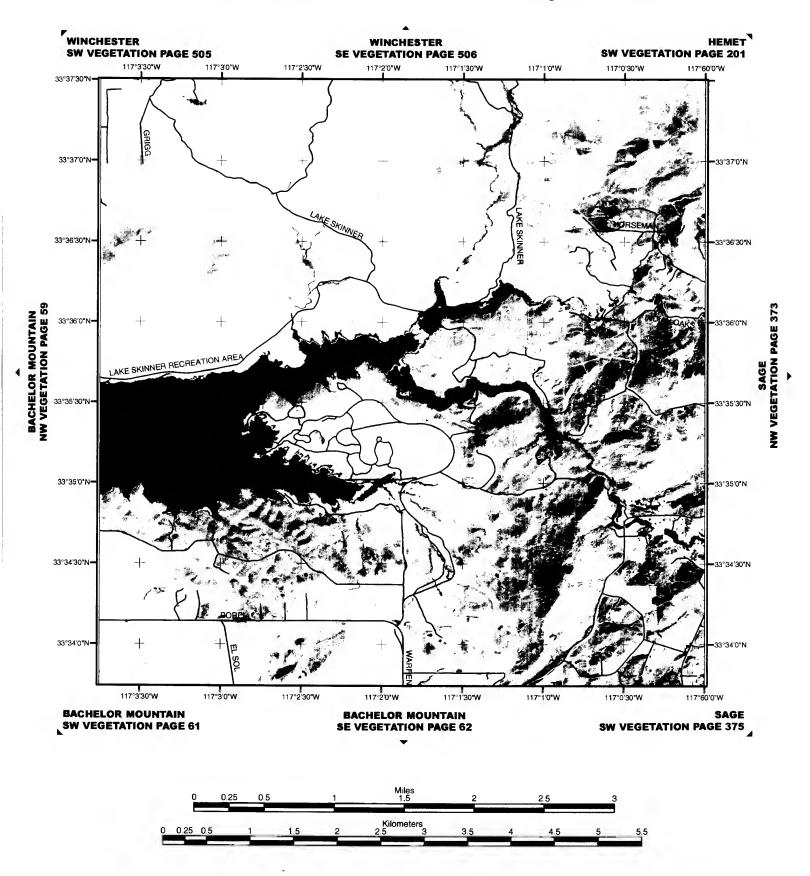
#### Bachelor Mountain Quadrangle Vegetation Species Association Units for Aquatic Resources



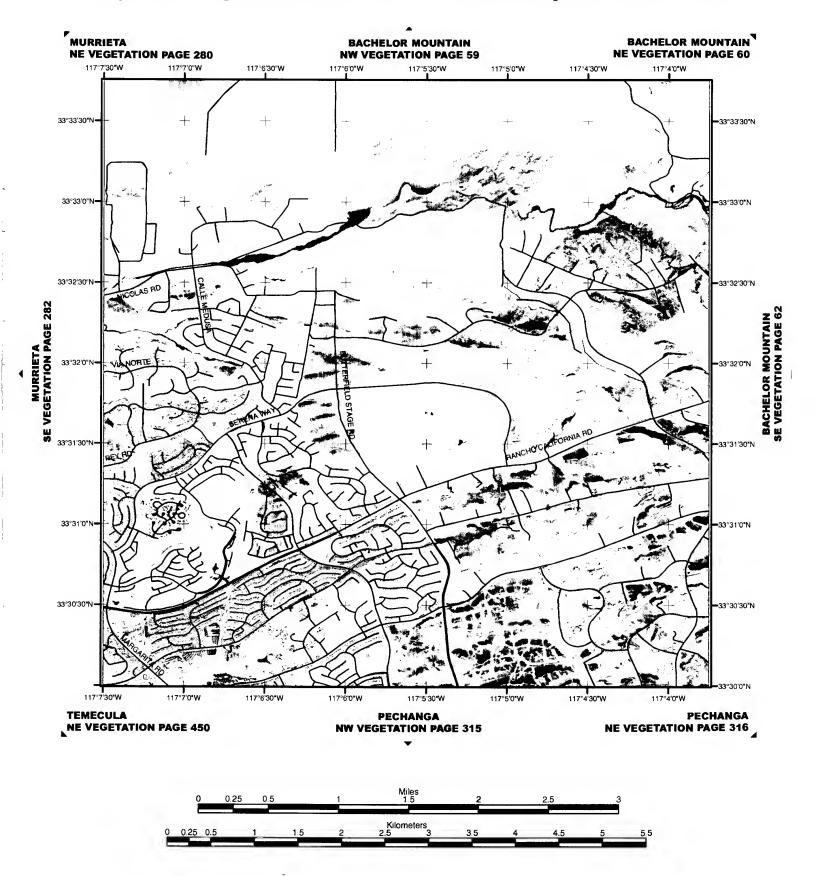
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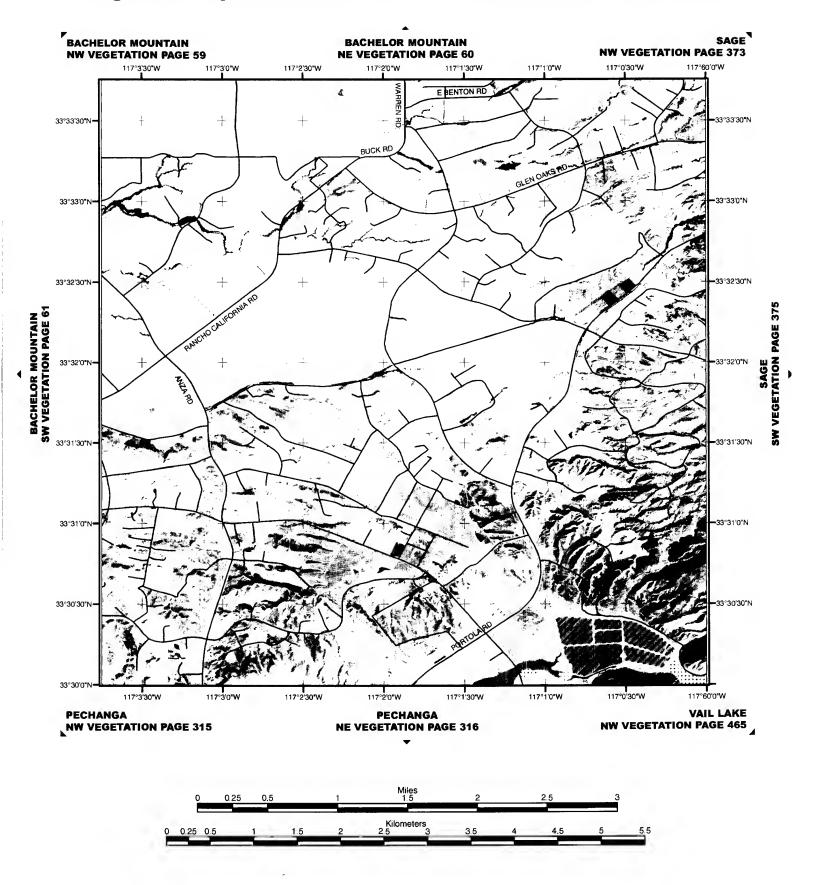
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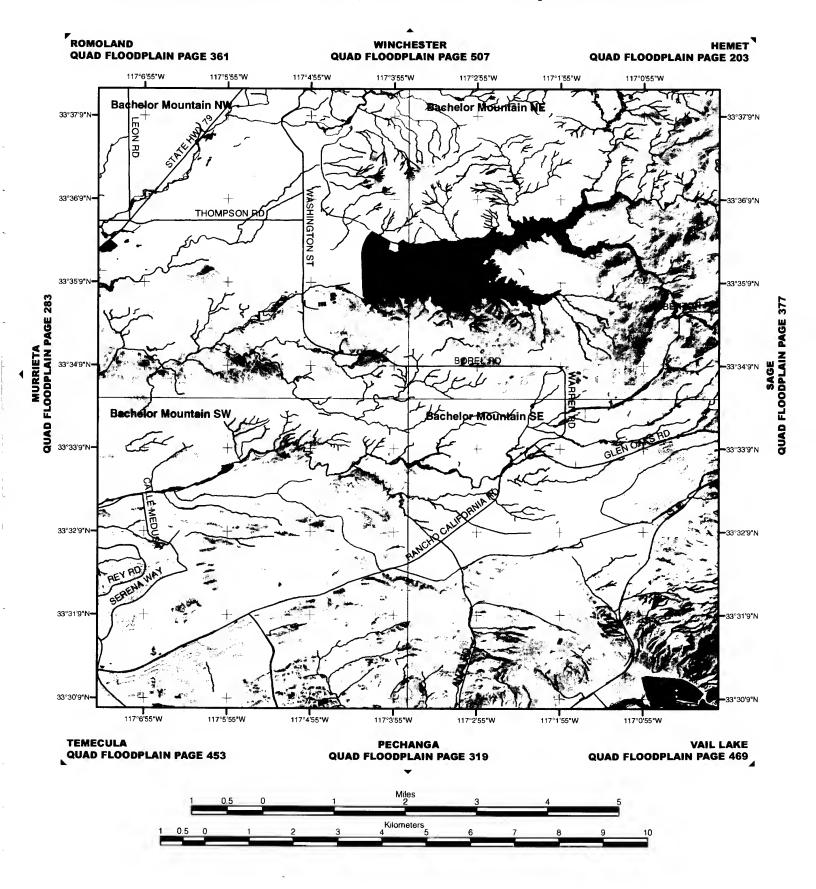
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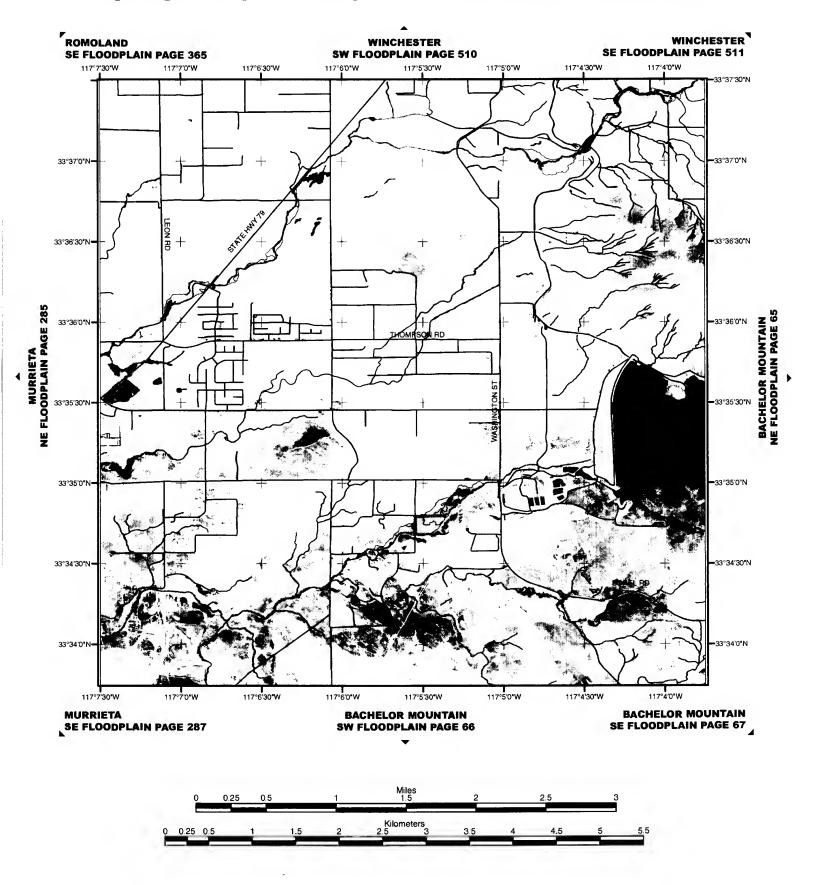
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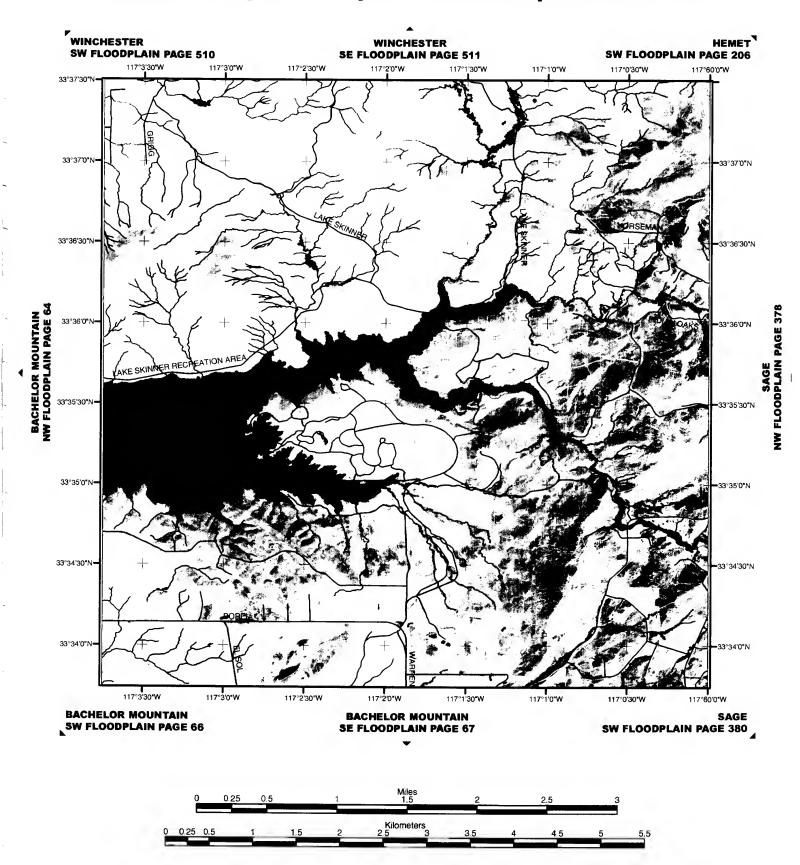
## Bachelor Mountain Quadrangle Hydrogeomorphic Floodplain Units for Aquatic Resources



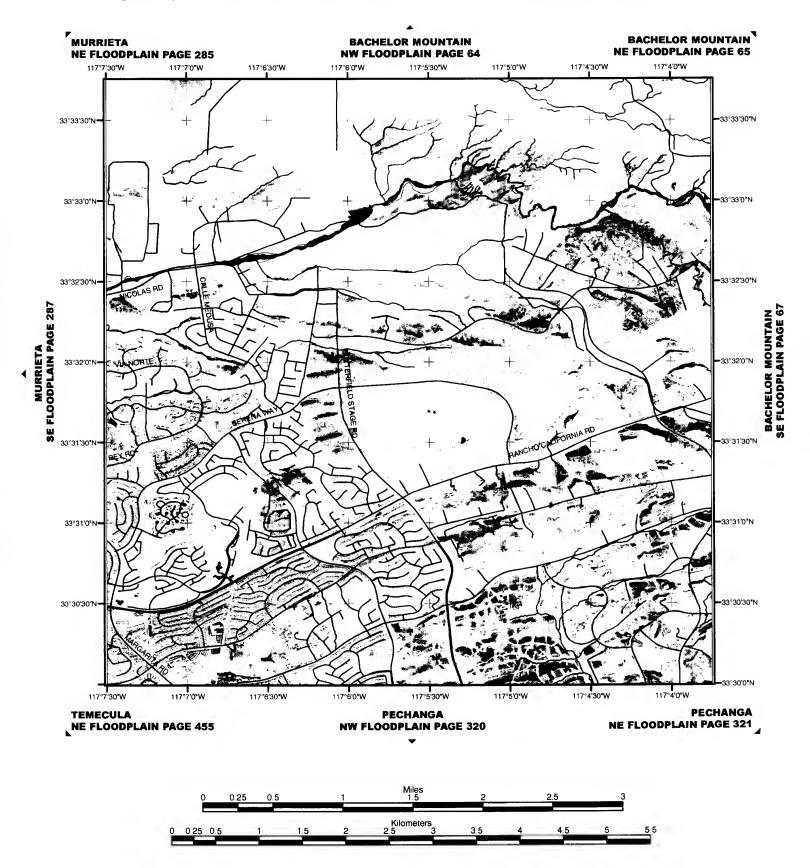
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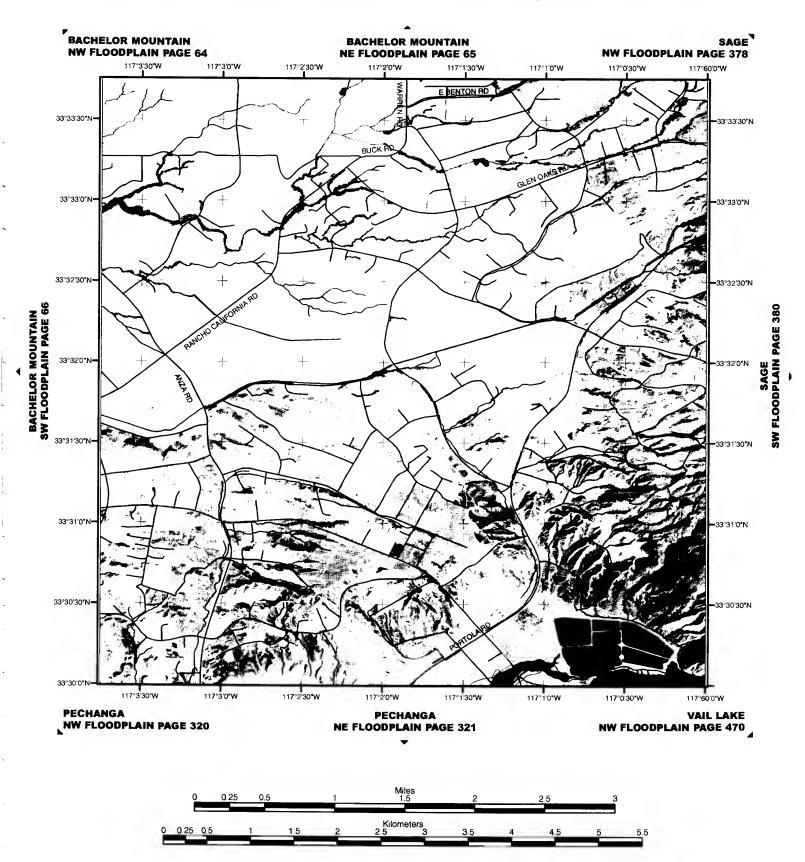
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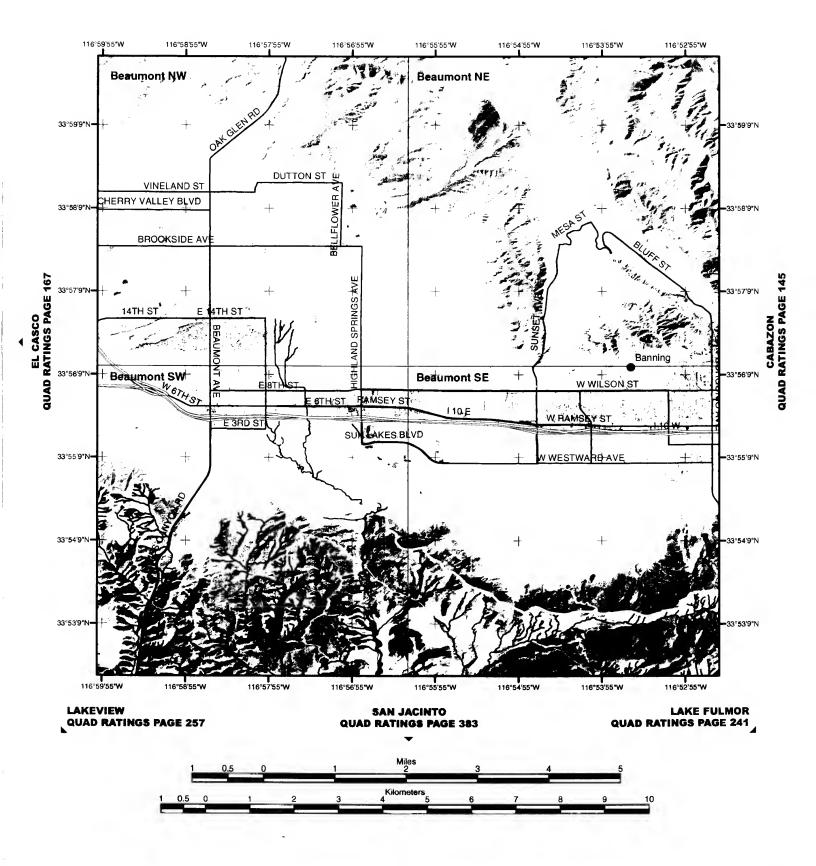
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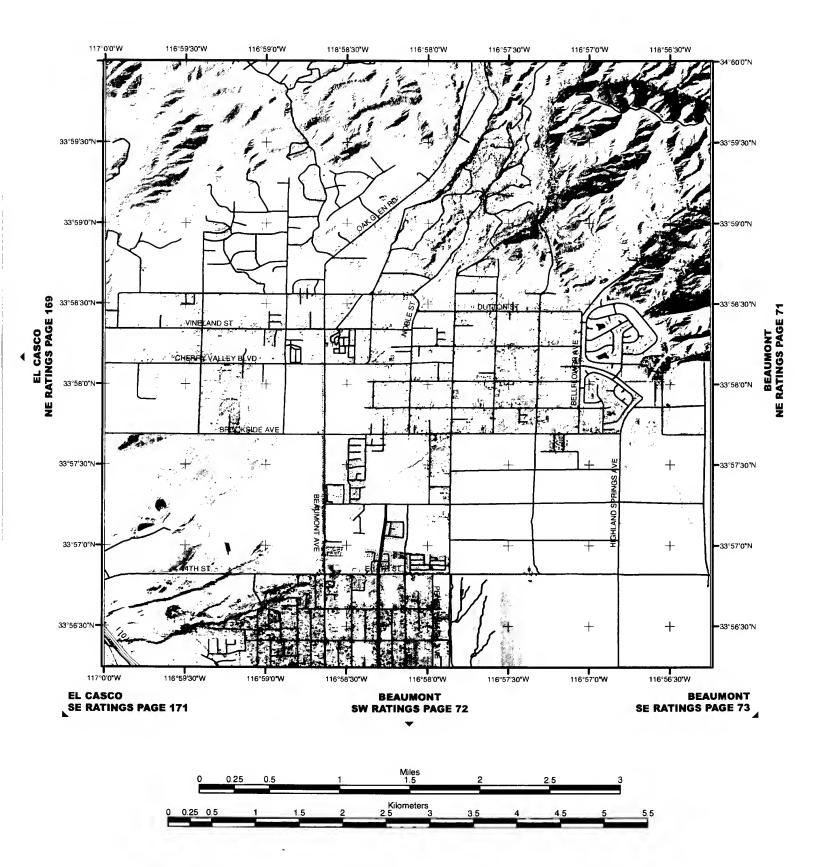
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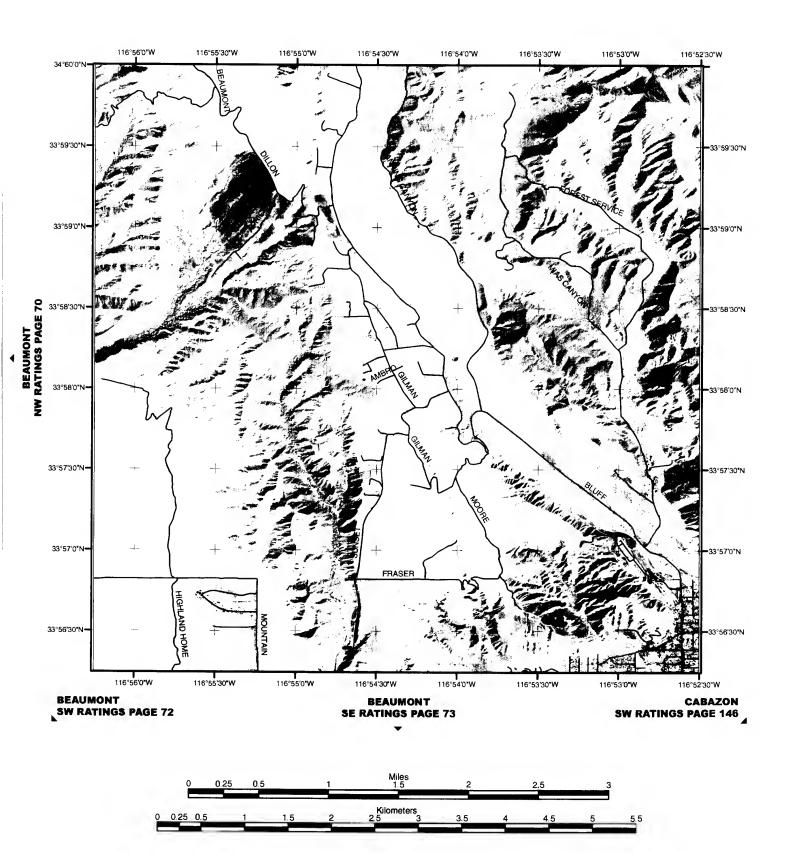
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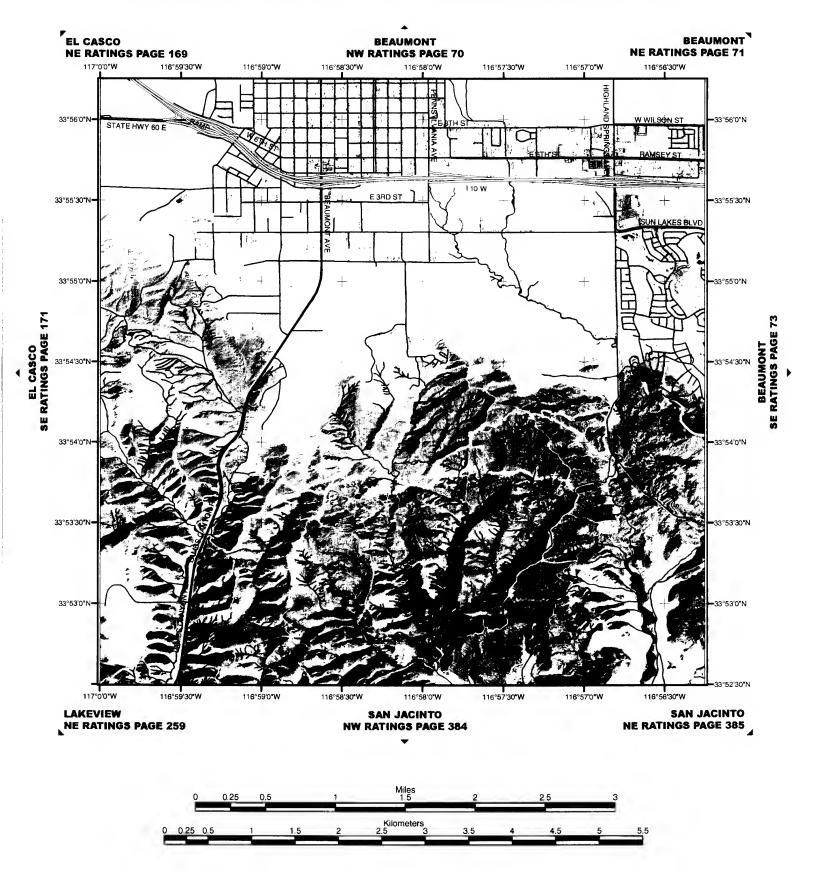
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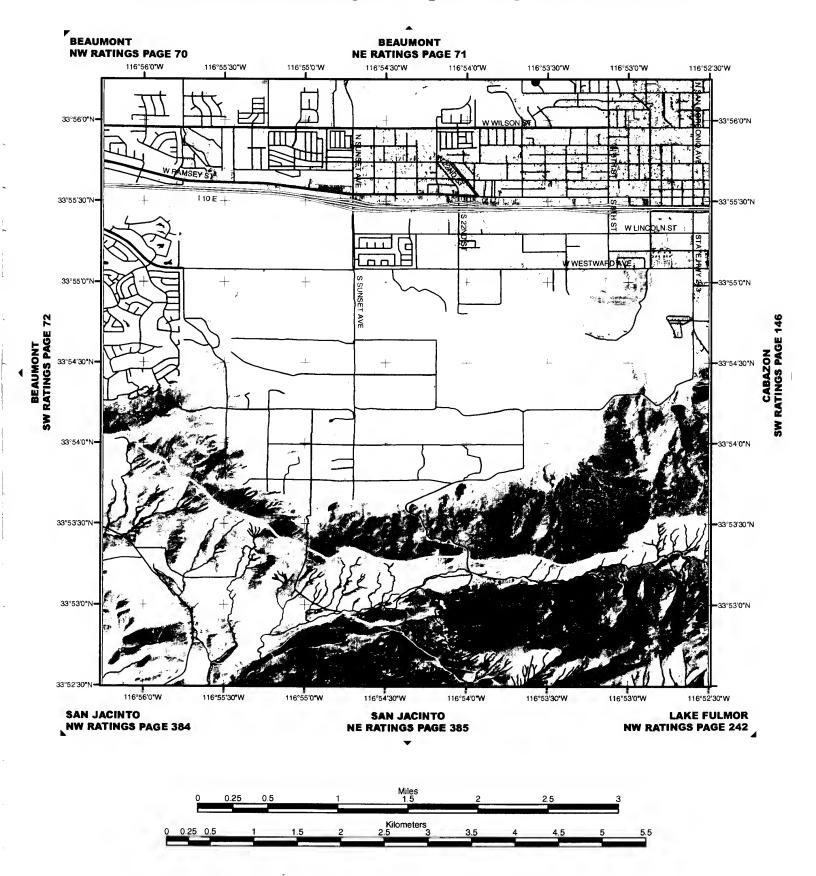
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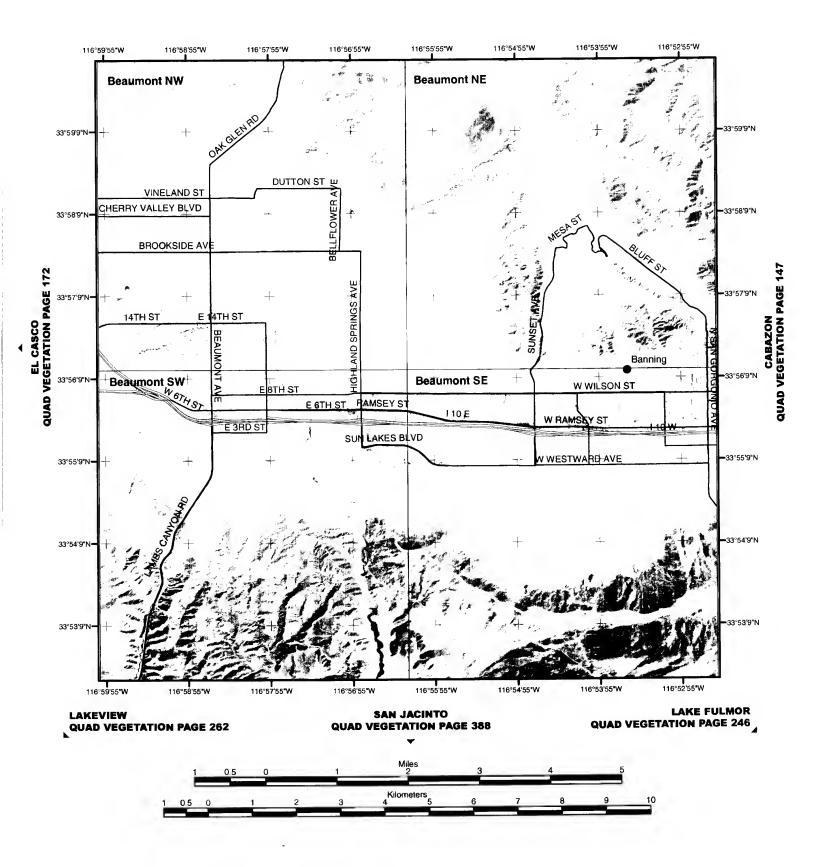
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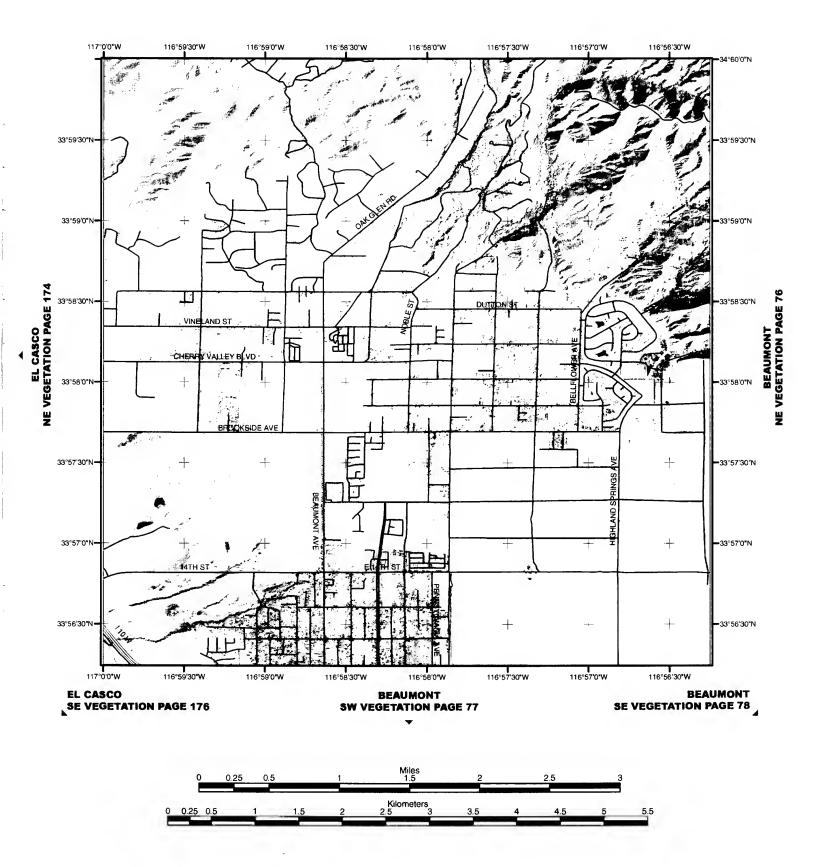
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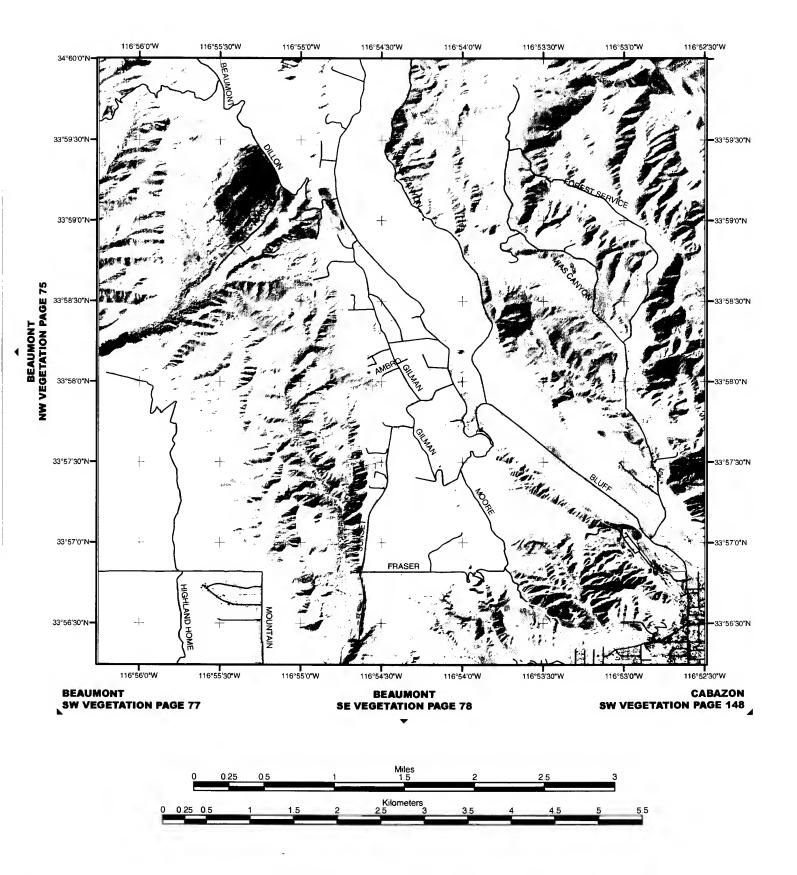
# Beaumont Quadrangle Vegetation Species Association Units for Aquatic Resources



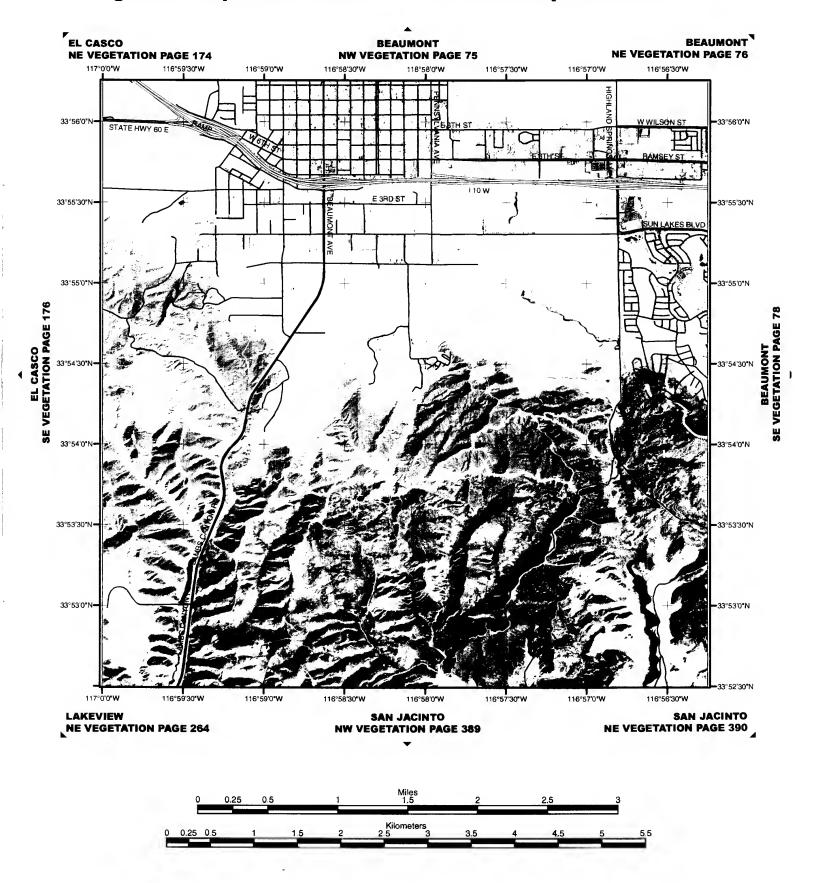
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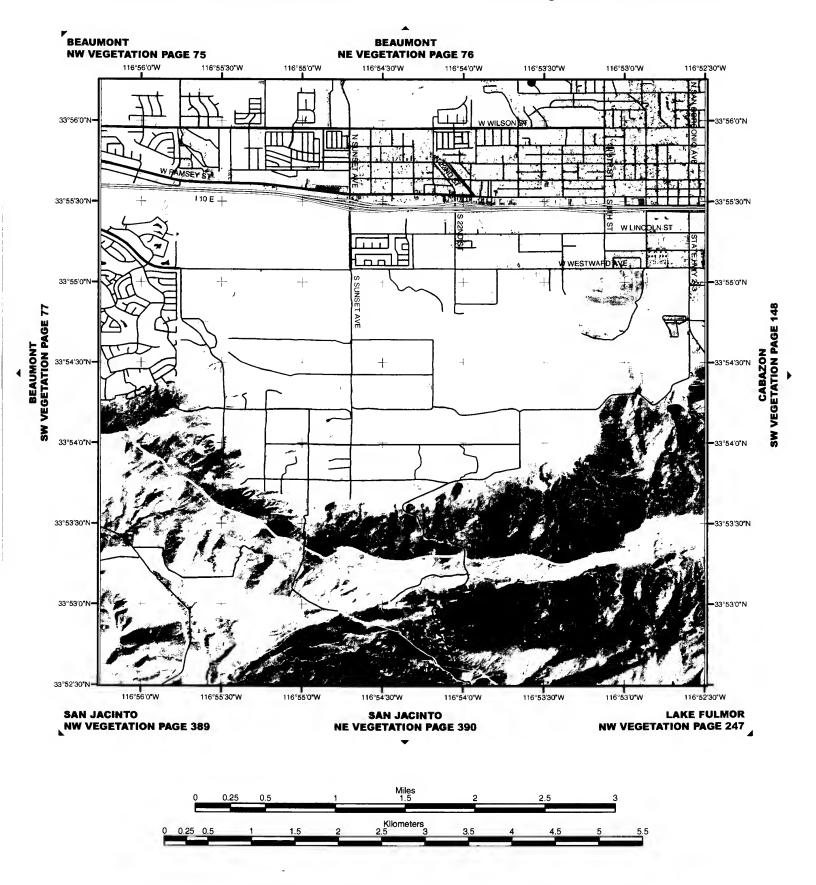
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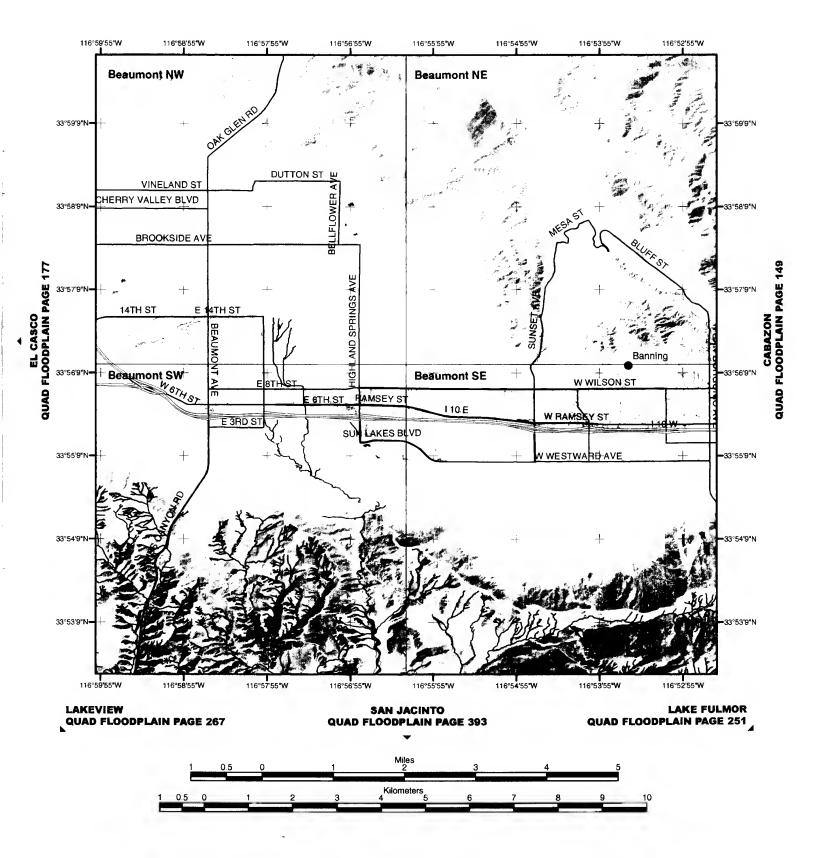
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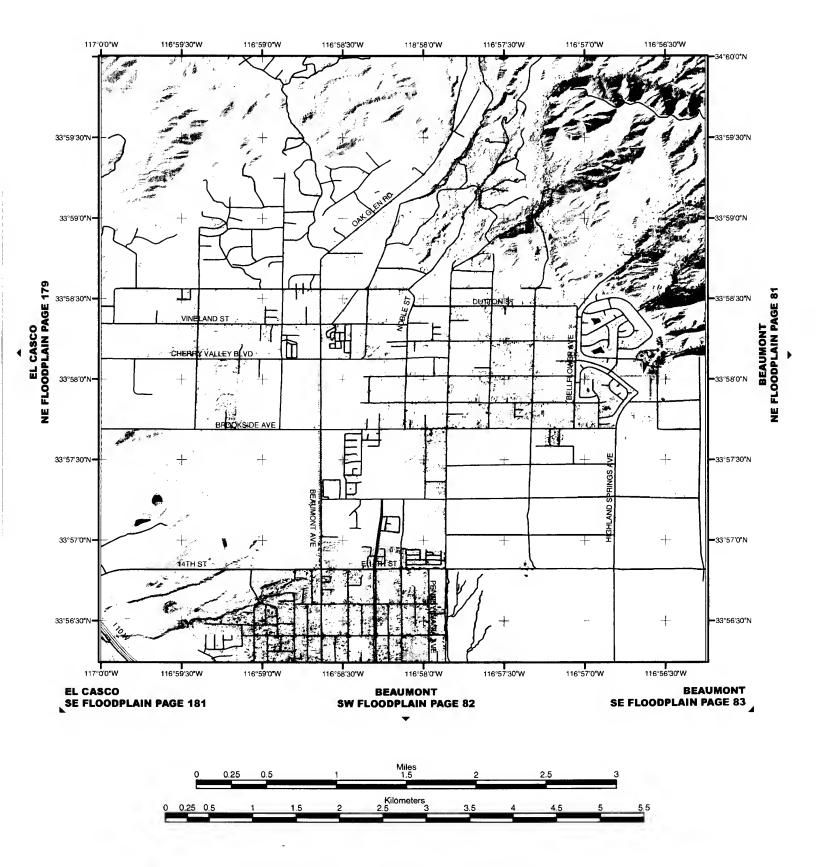
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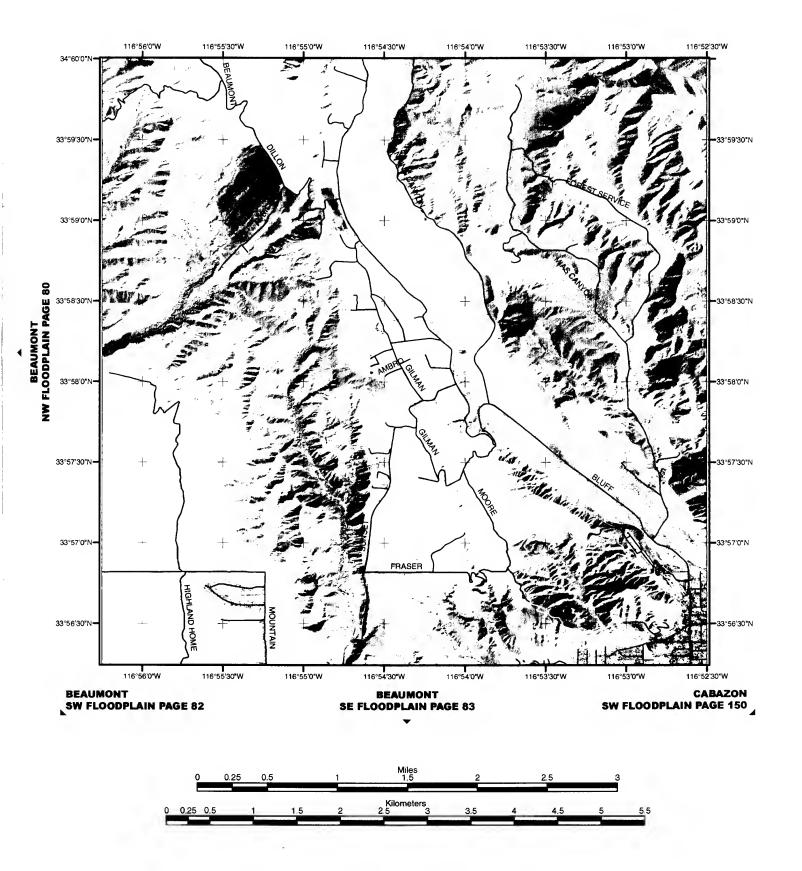
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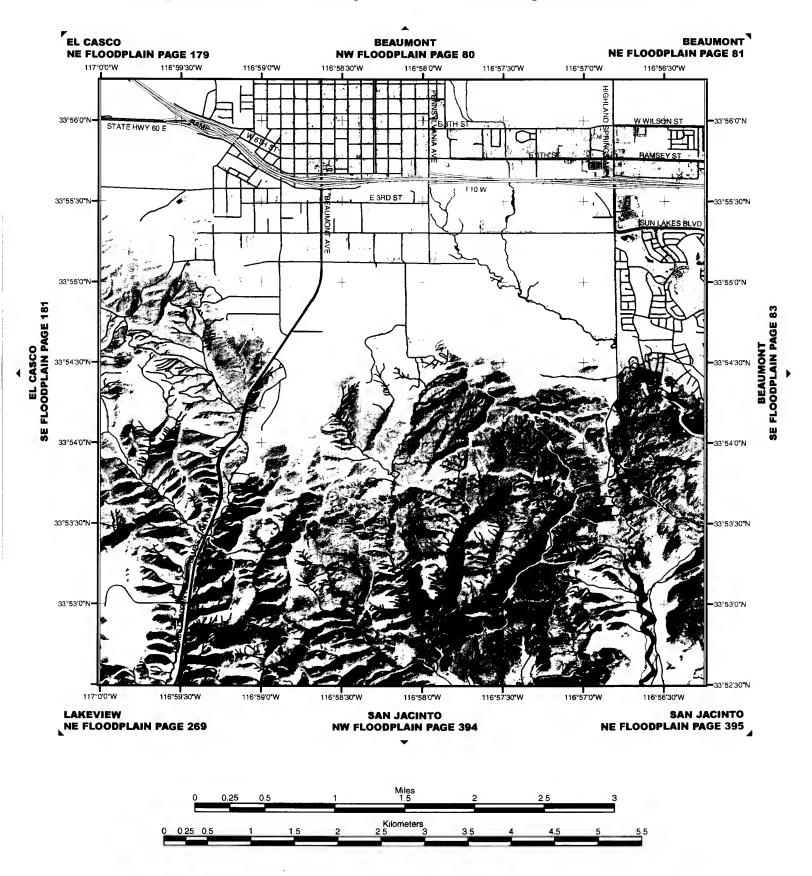
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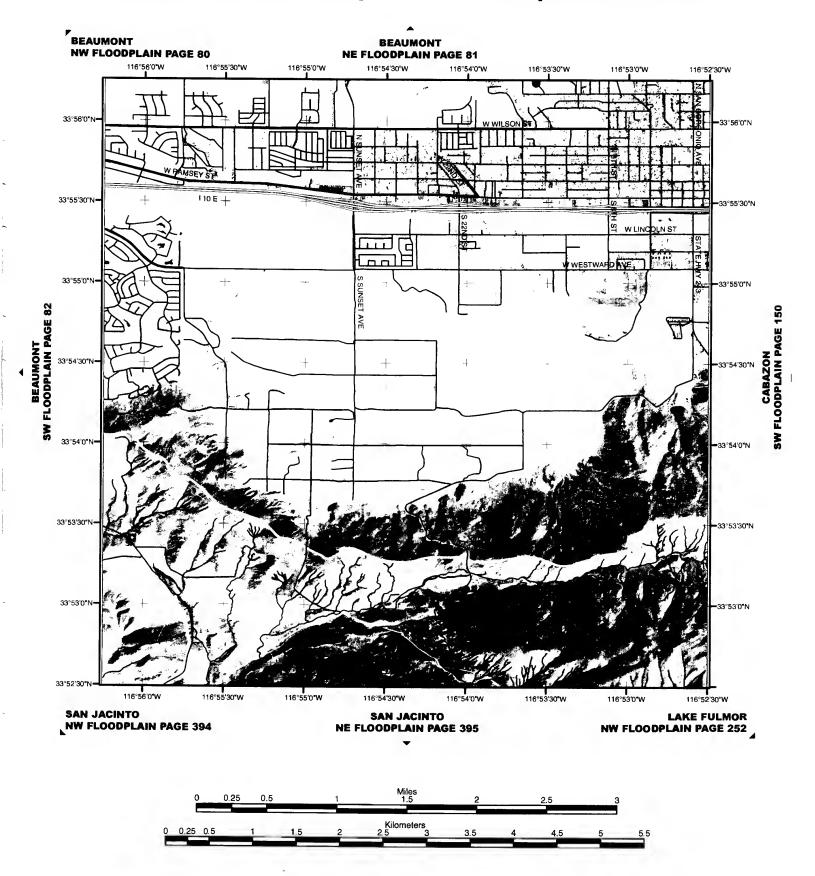
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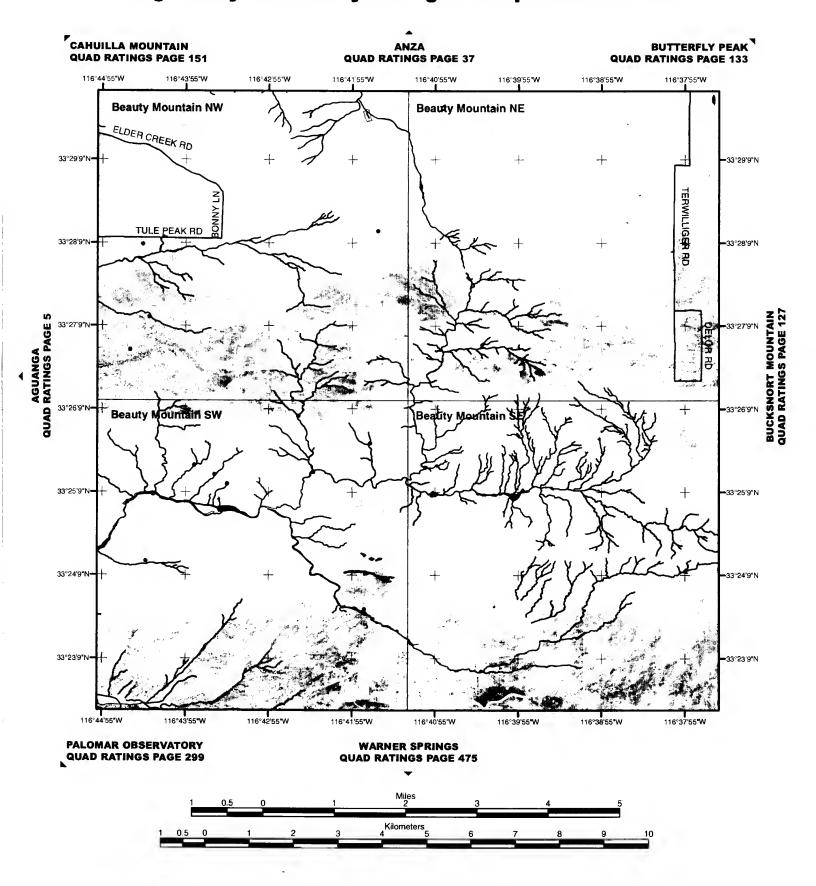
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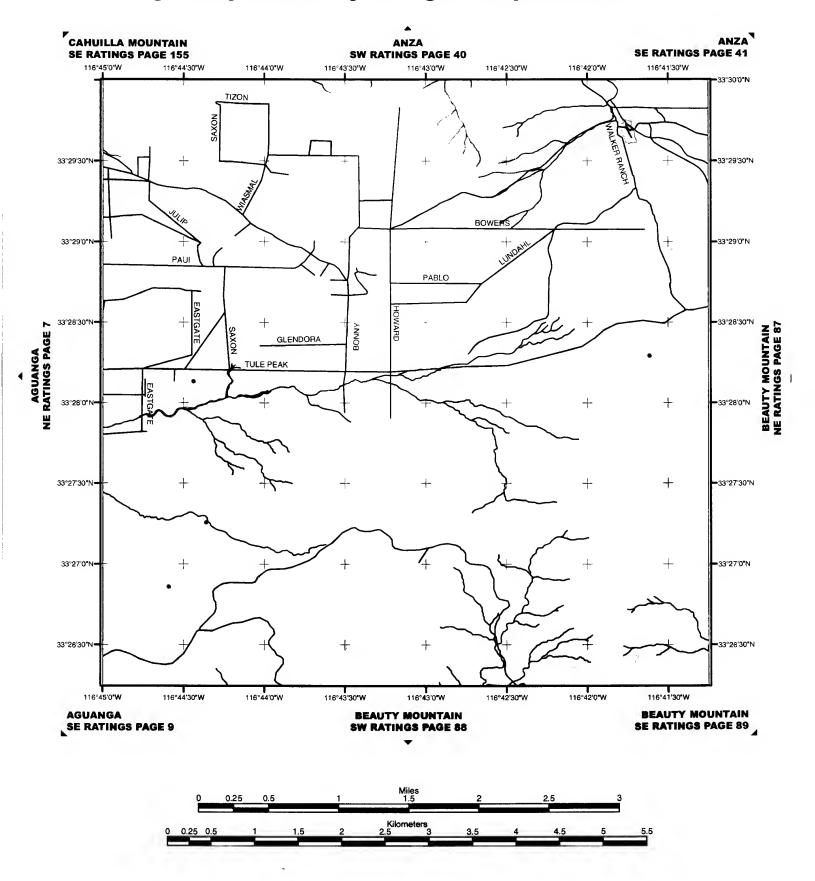
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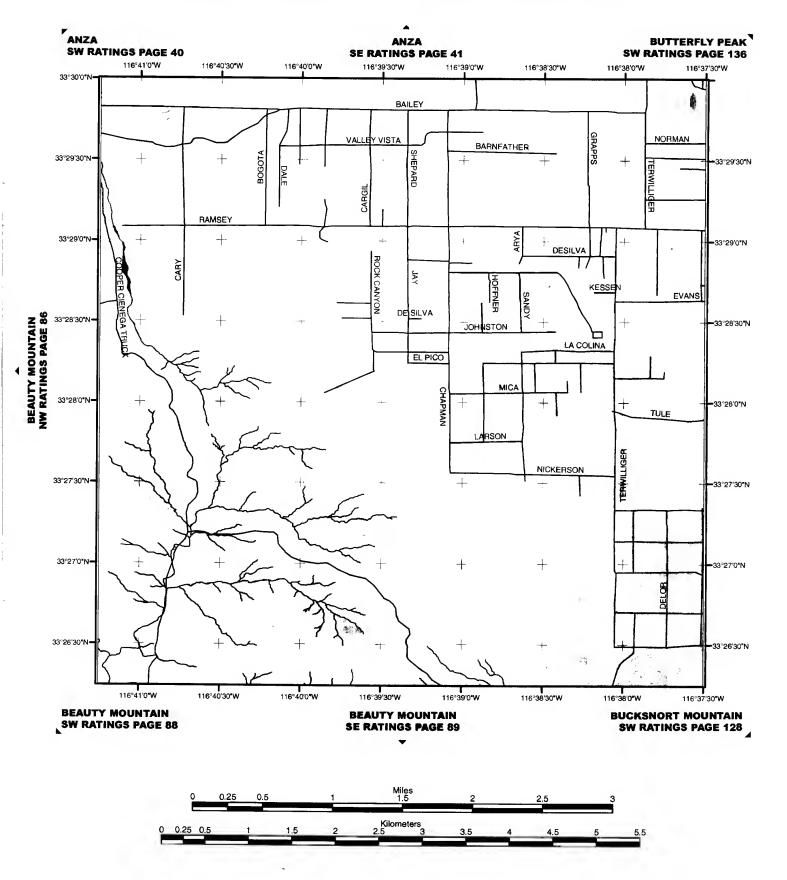
### Beauty Mountain Quadrangle Regulatory Probability Ratings for Aquatic Resources



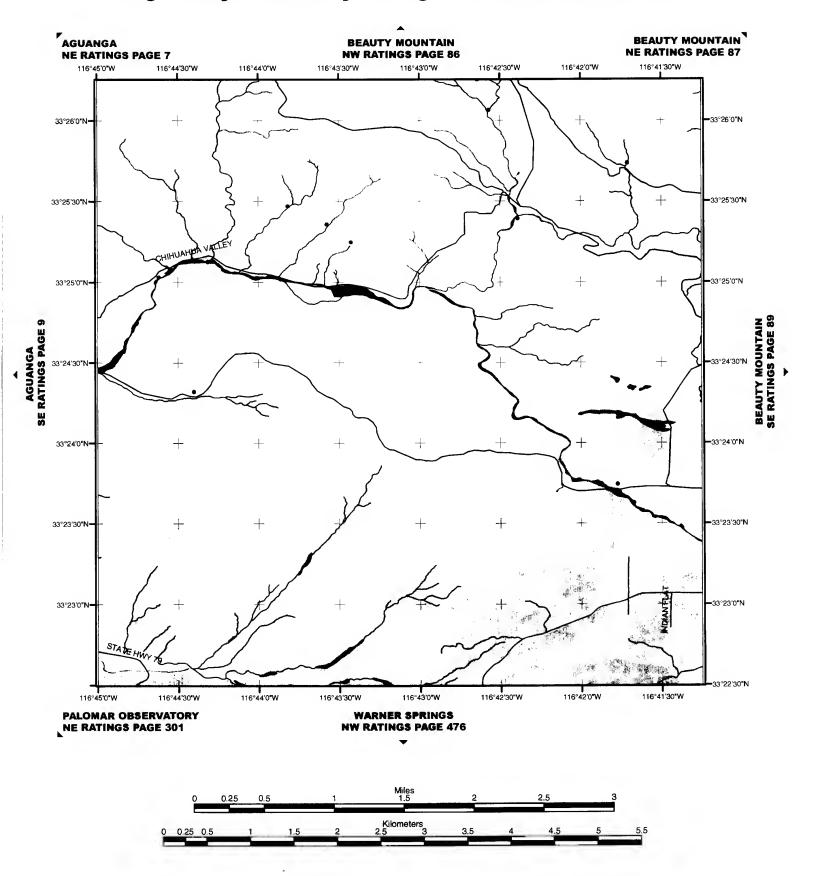
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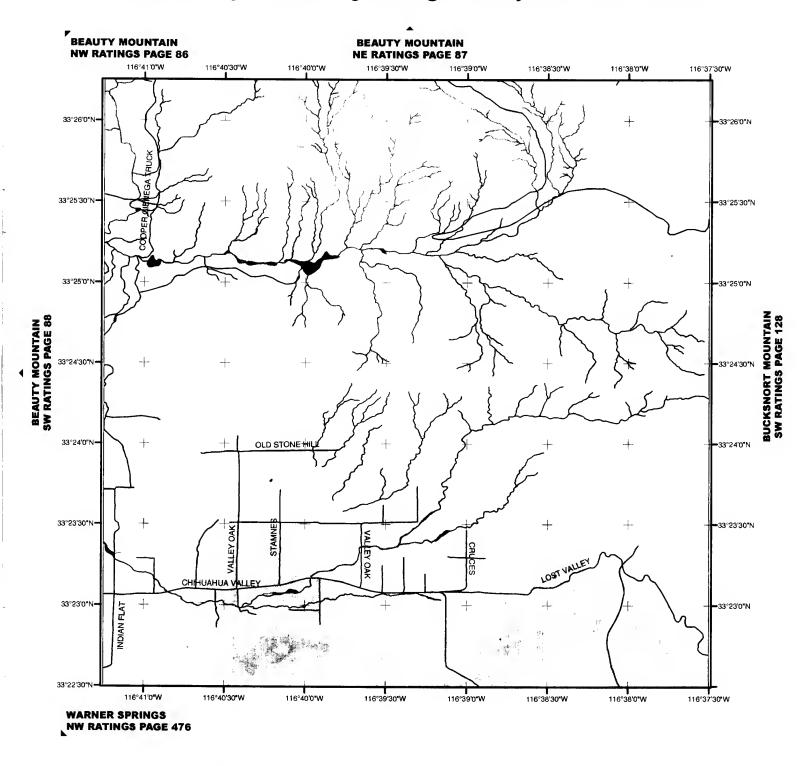
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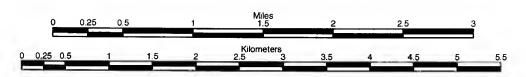


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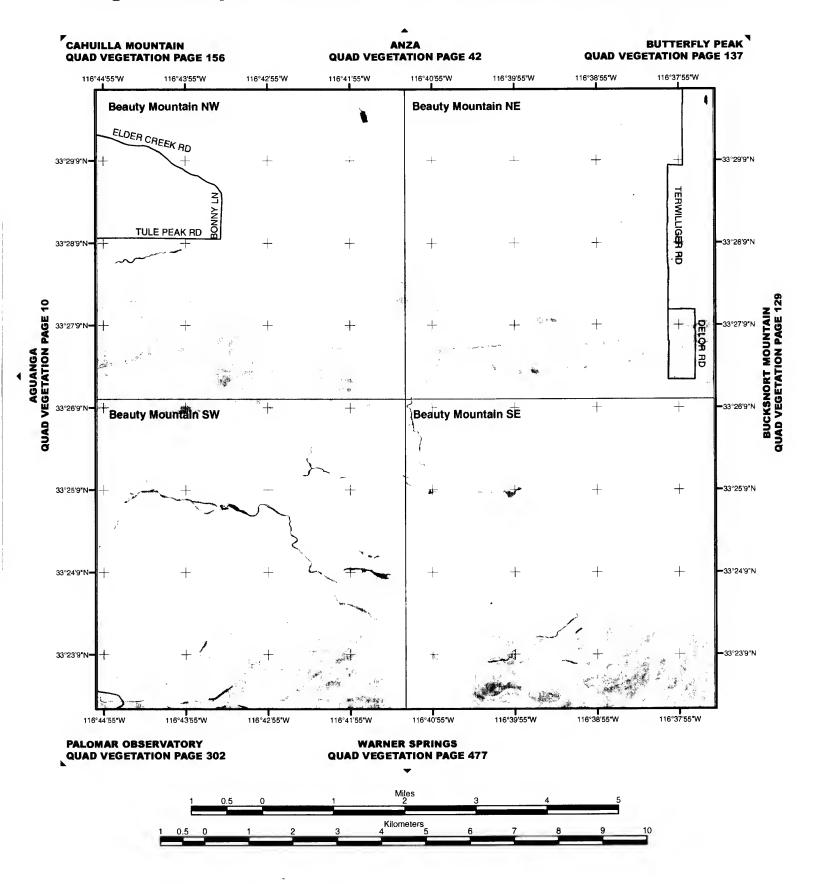


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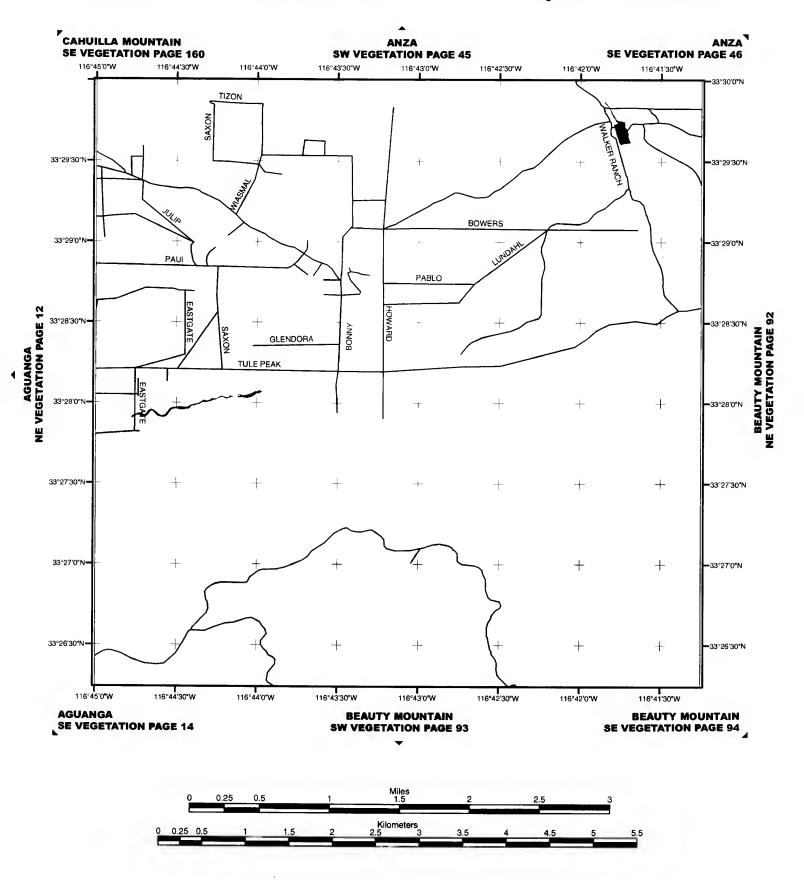




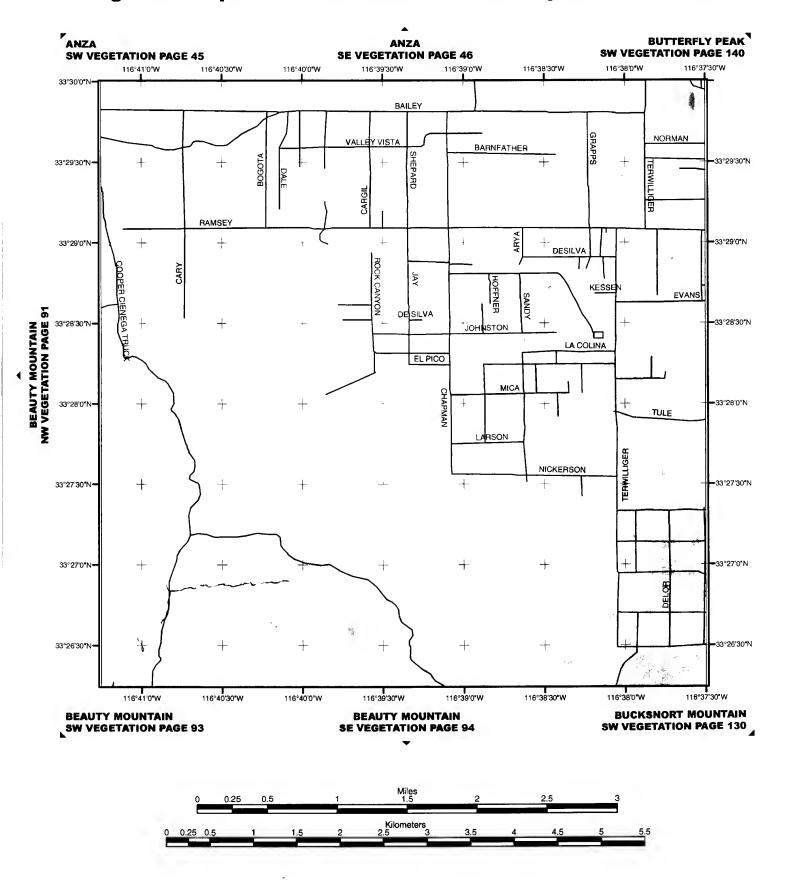
#### Beauty Mountain Quadrangle Vegetation Species Association Units for Aquatic Resources



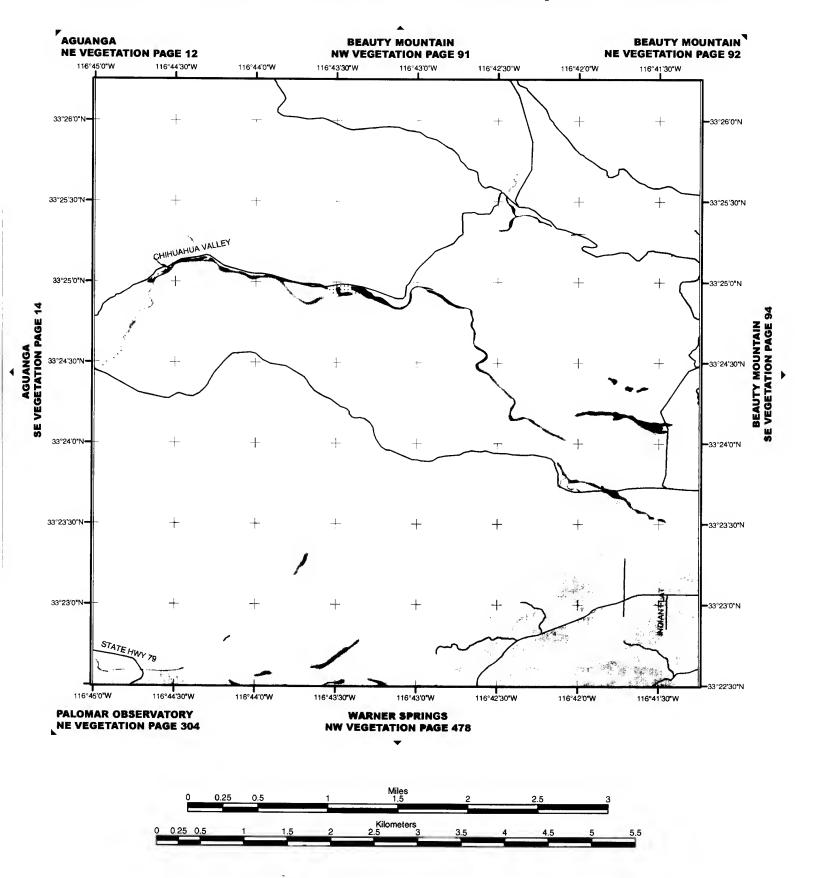
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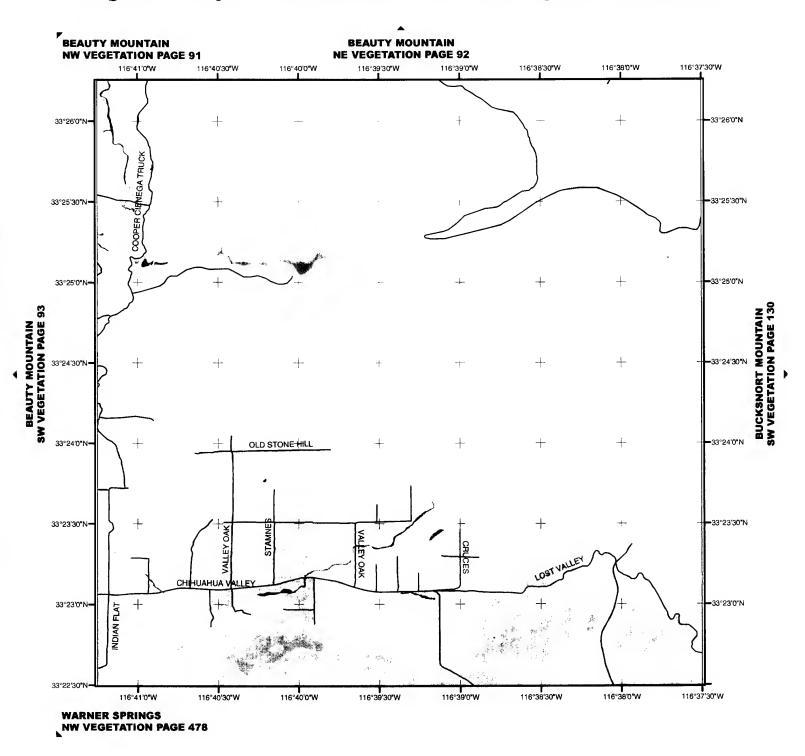
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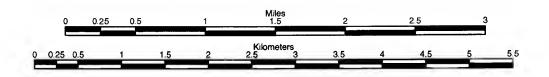


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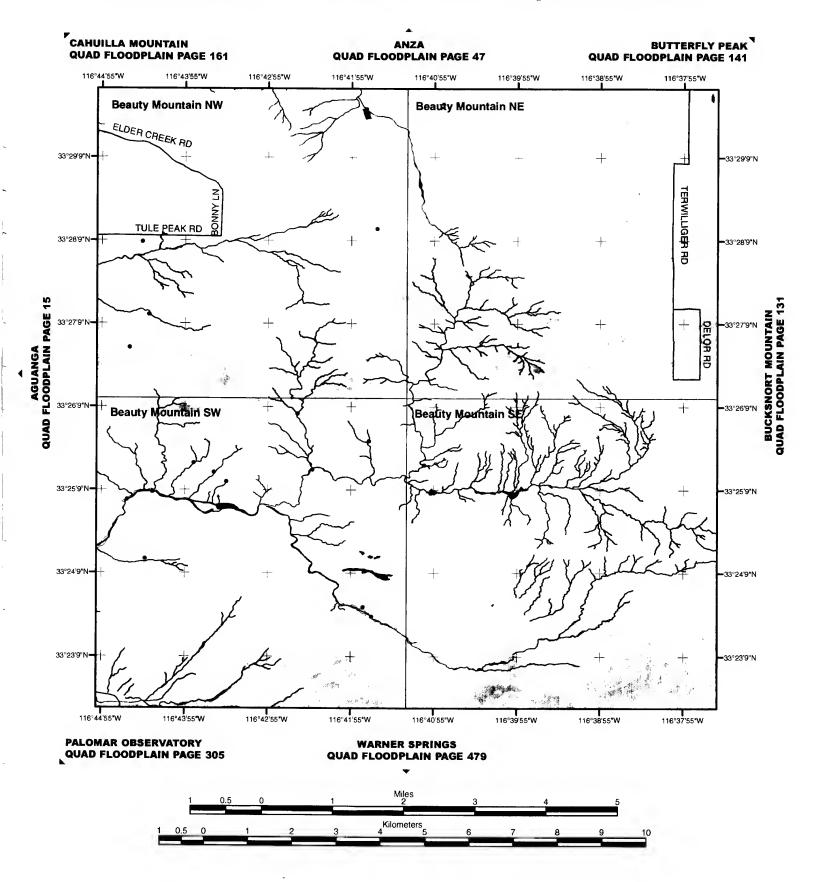


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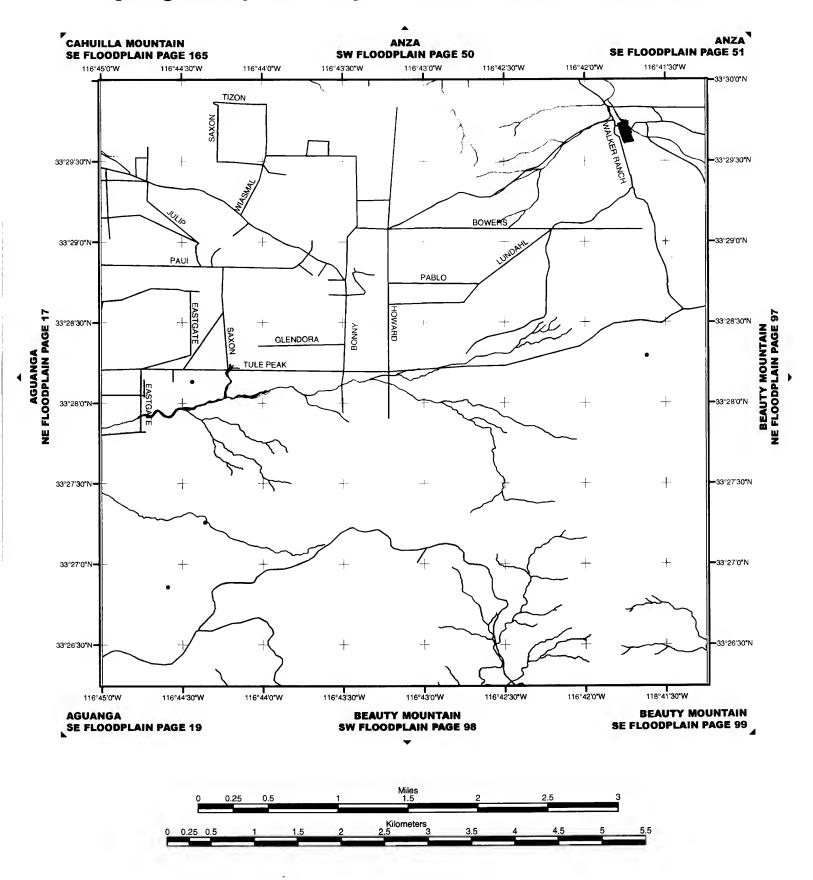




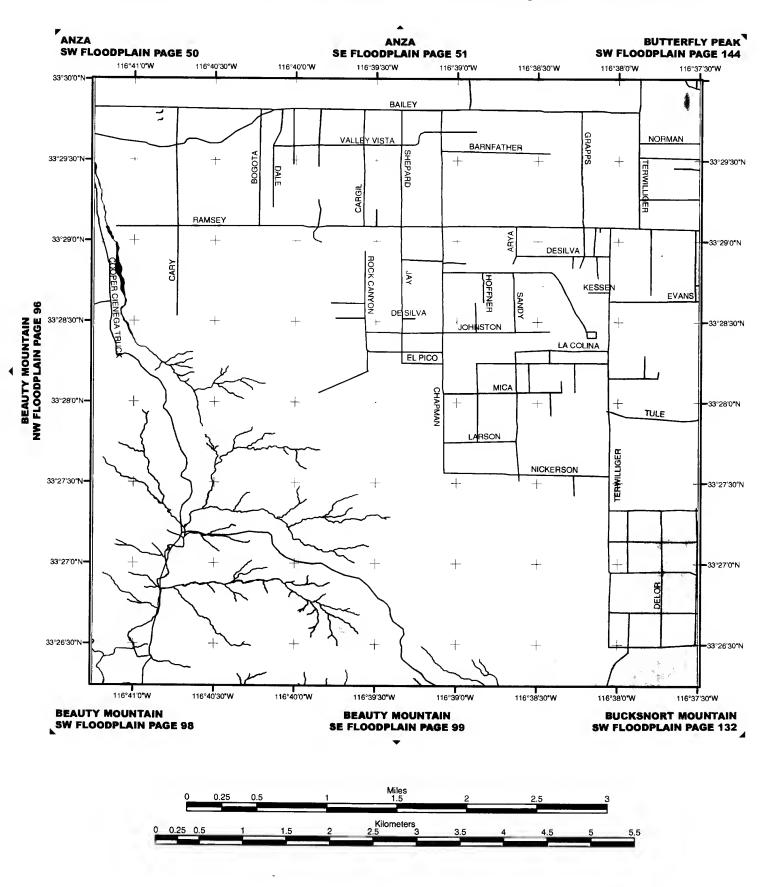
### Beauty Mountain Quadrangle Hydrogeomorphic Floodplain Units for Aquatic Resources



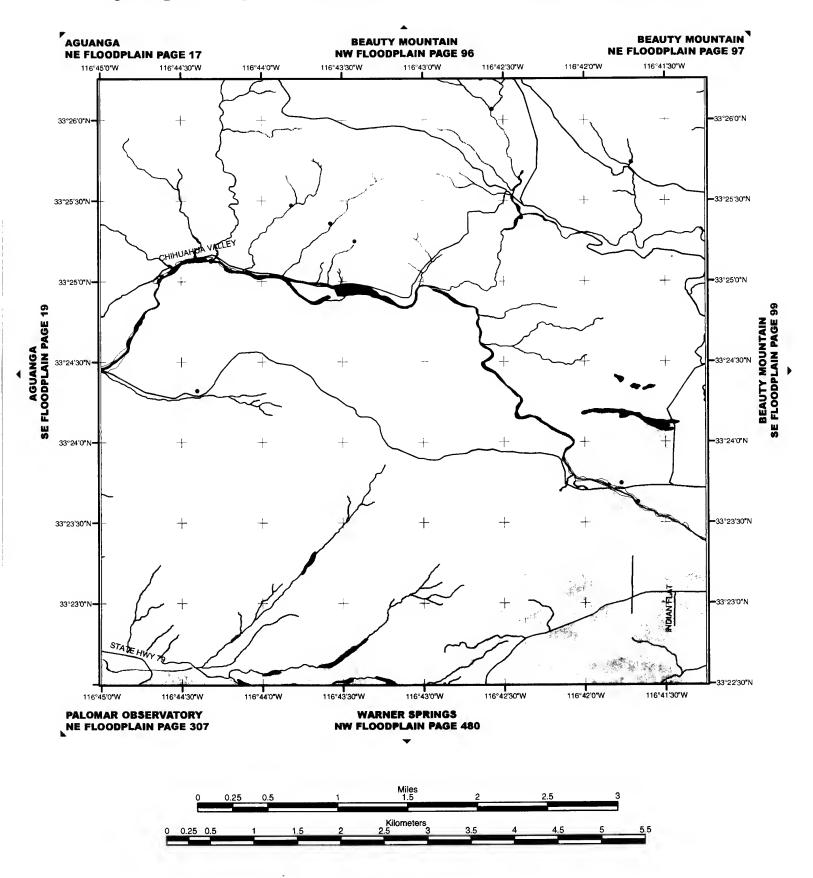
#### Beauty Mountain North West Quarter-Quadrangle Hydrogeomorphic Floodplain Units for Aquatic Resources



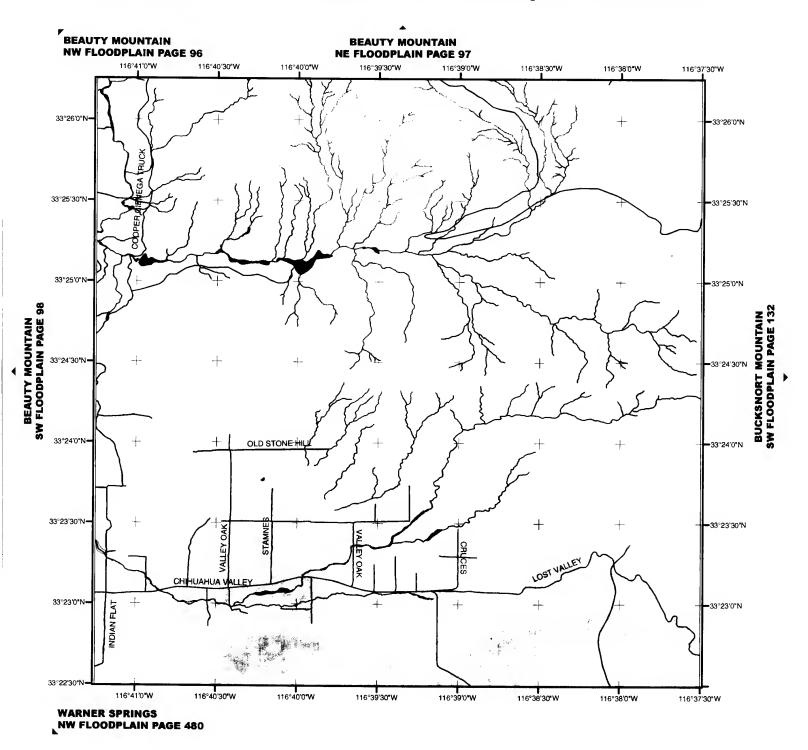
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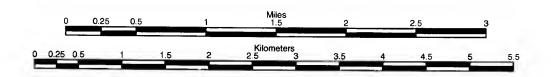


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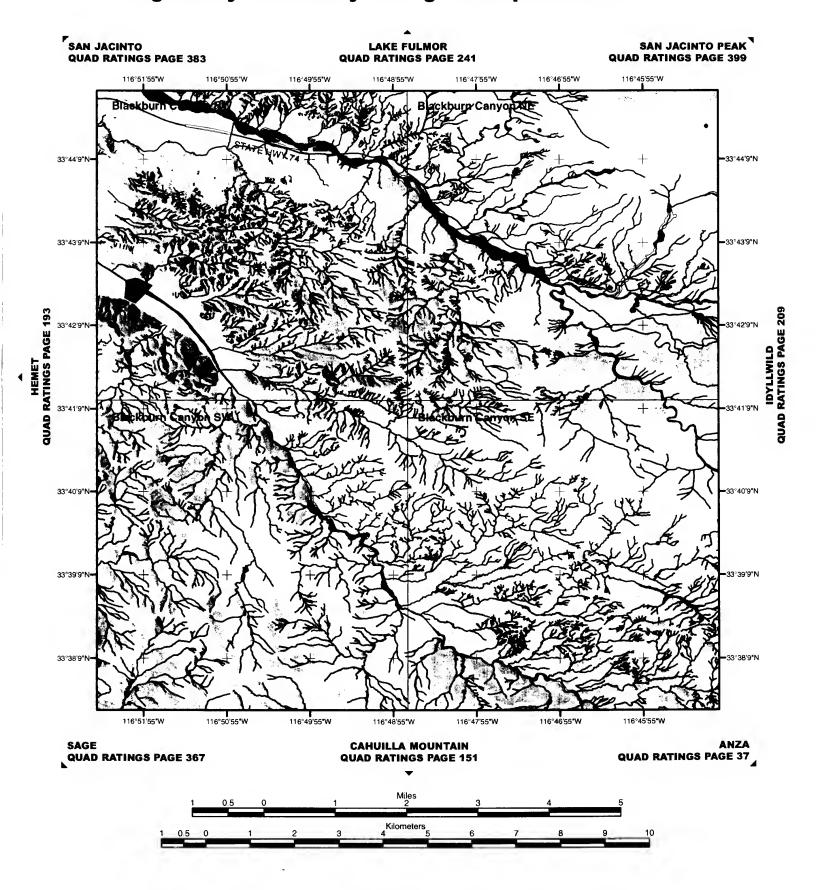


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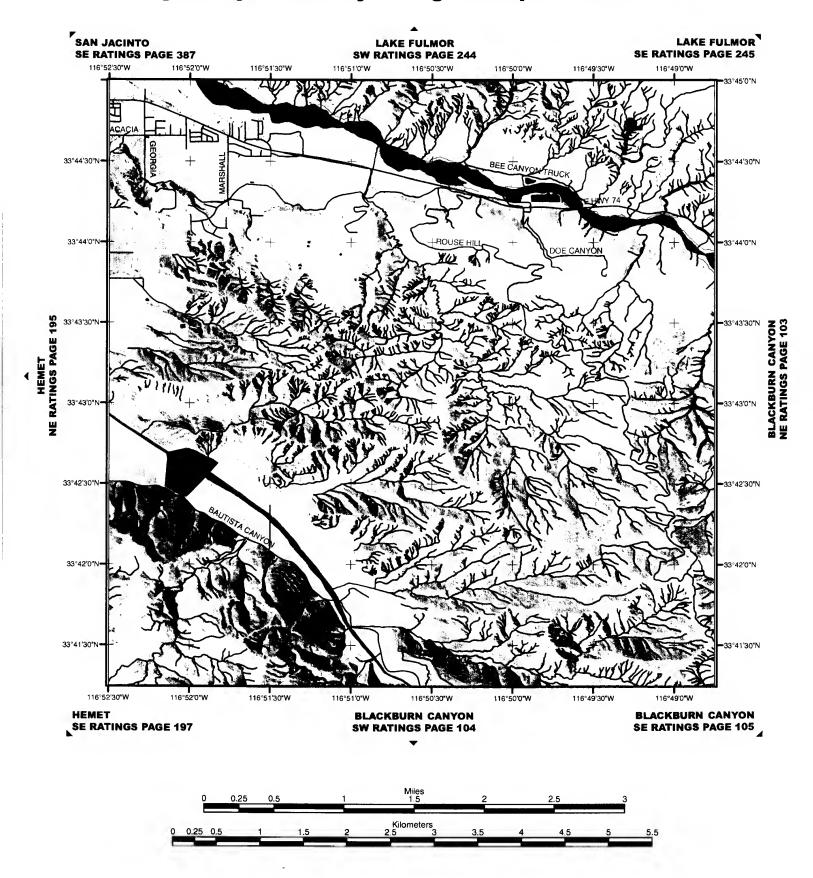




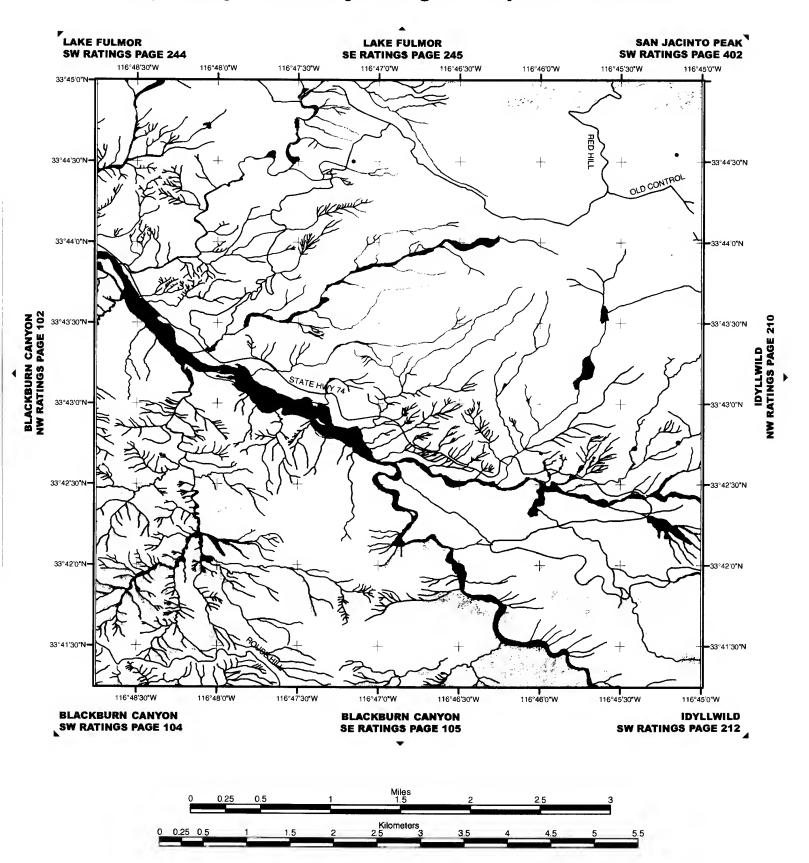
### Blackburn Canyon Quadrangle Regulatory Probability Ratings for Aquatic Resources



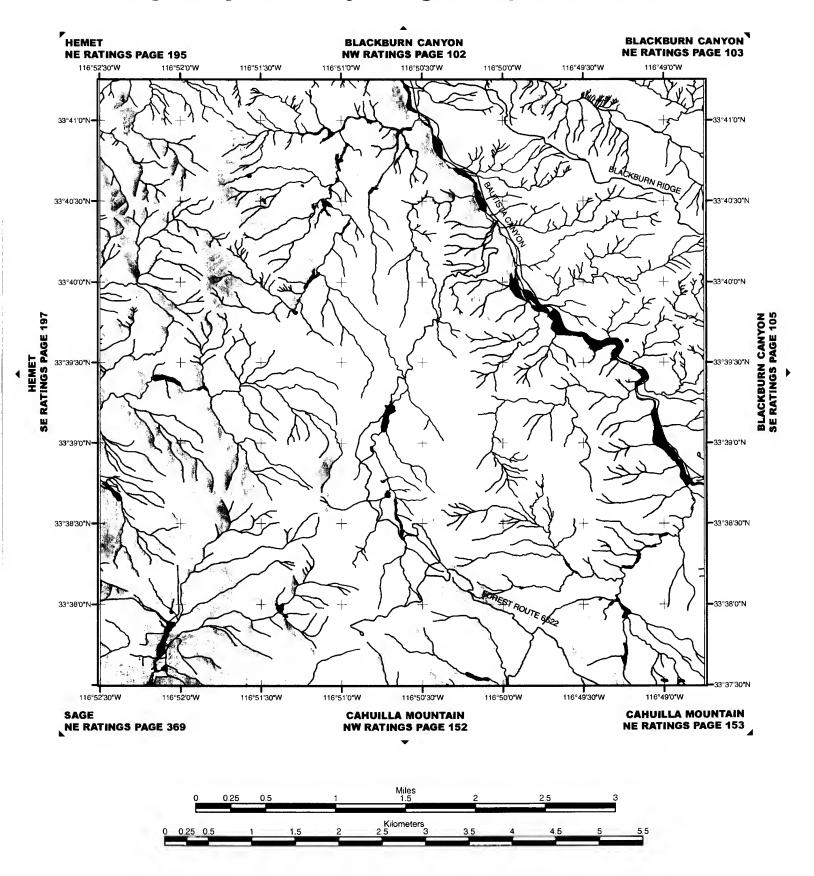
#### Blackburn Canyon North West Quarter-Quadrangle Regulatory Probability Ratings for Aquatic Resources



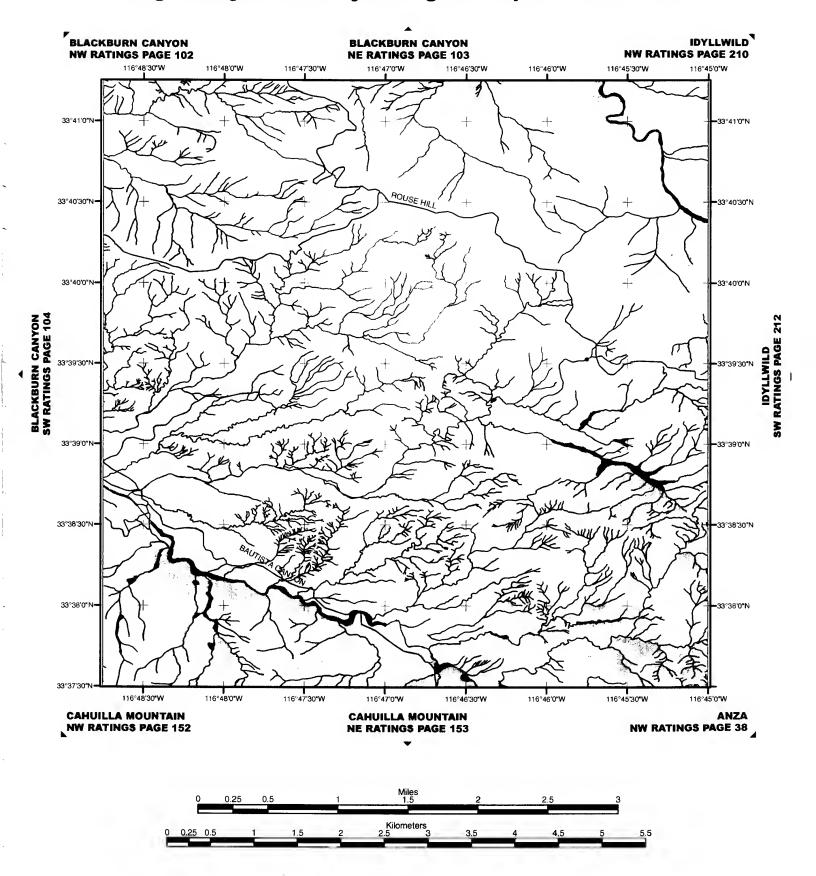
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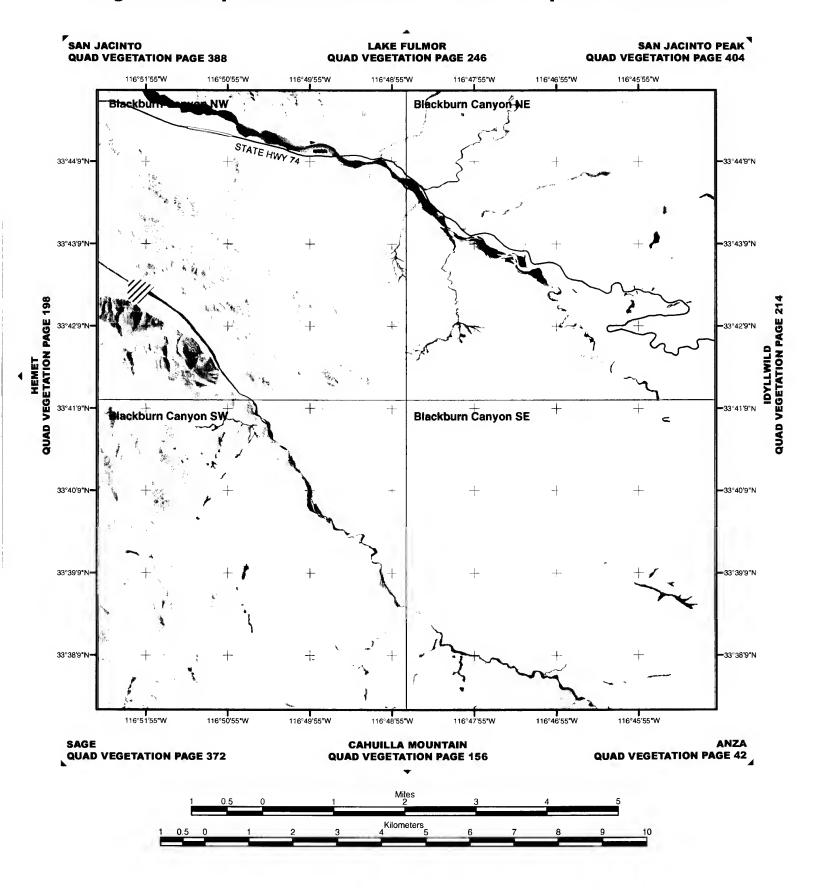
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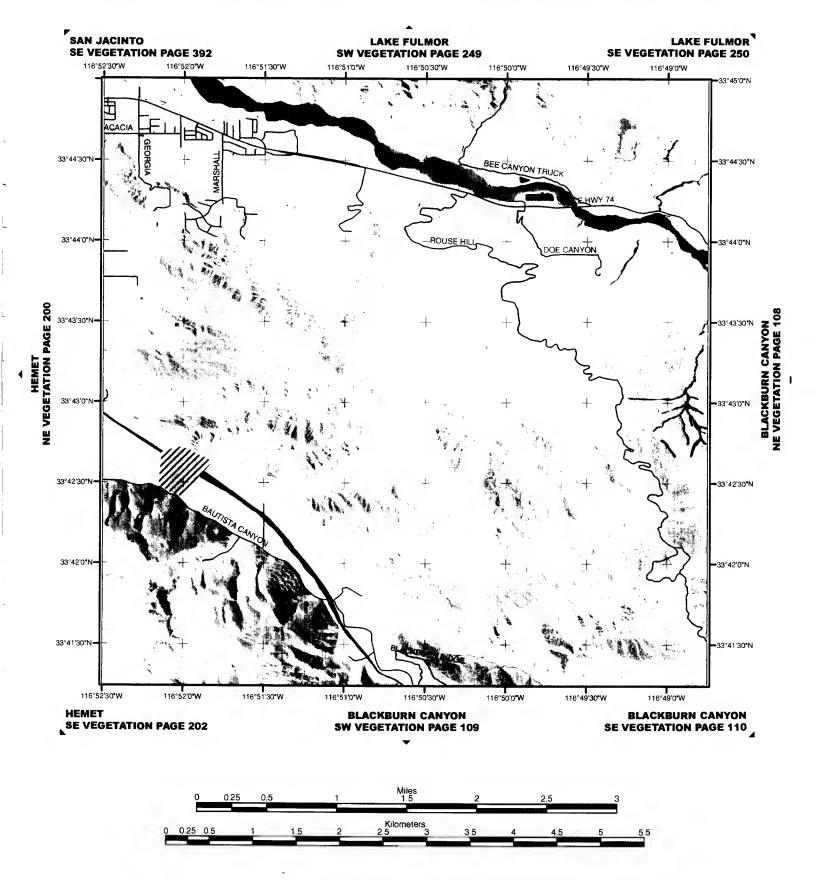
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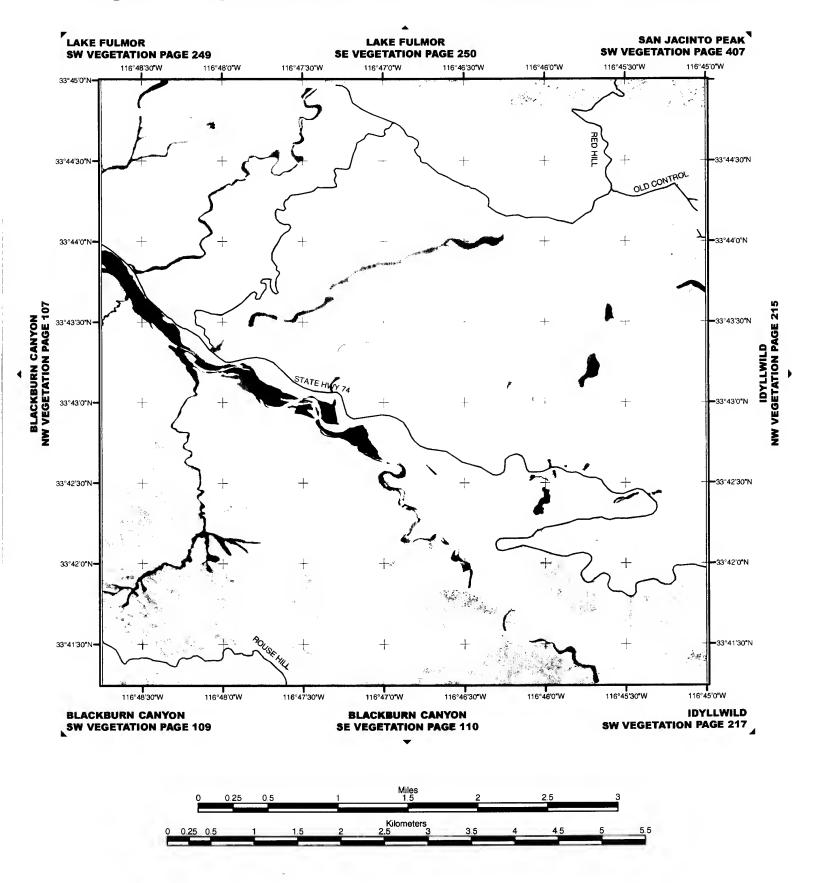
## Blackburn Canyon Quadrangle Vegetation Species Association Units for Aquatic Resources



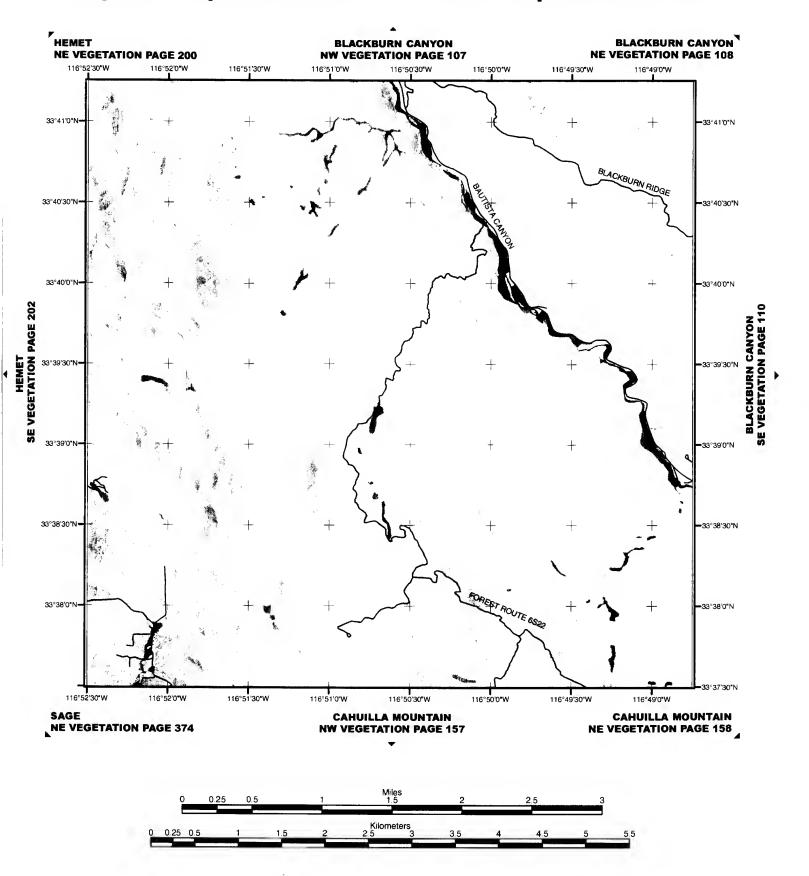
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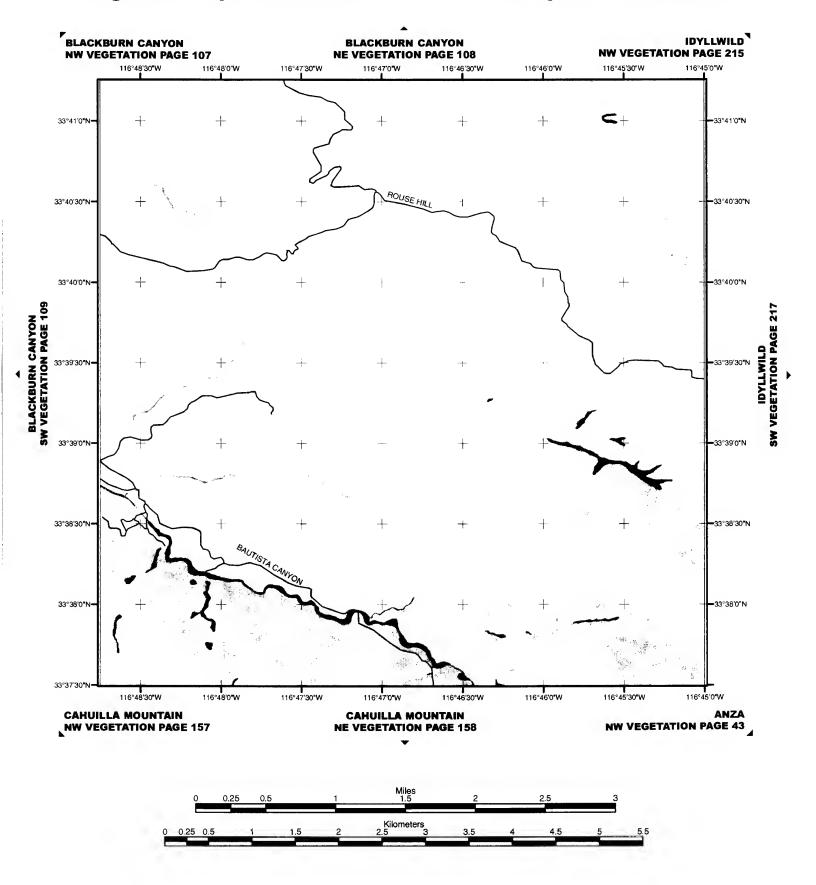
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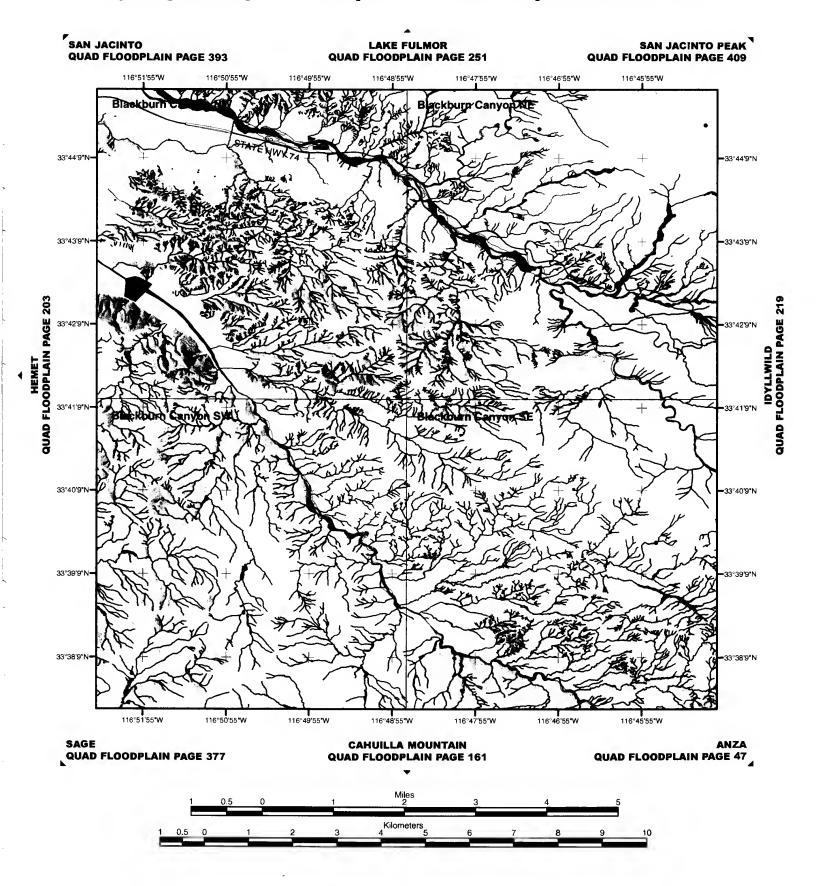
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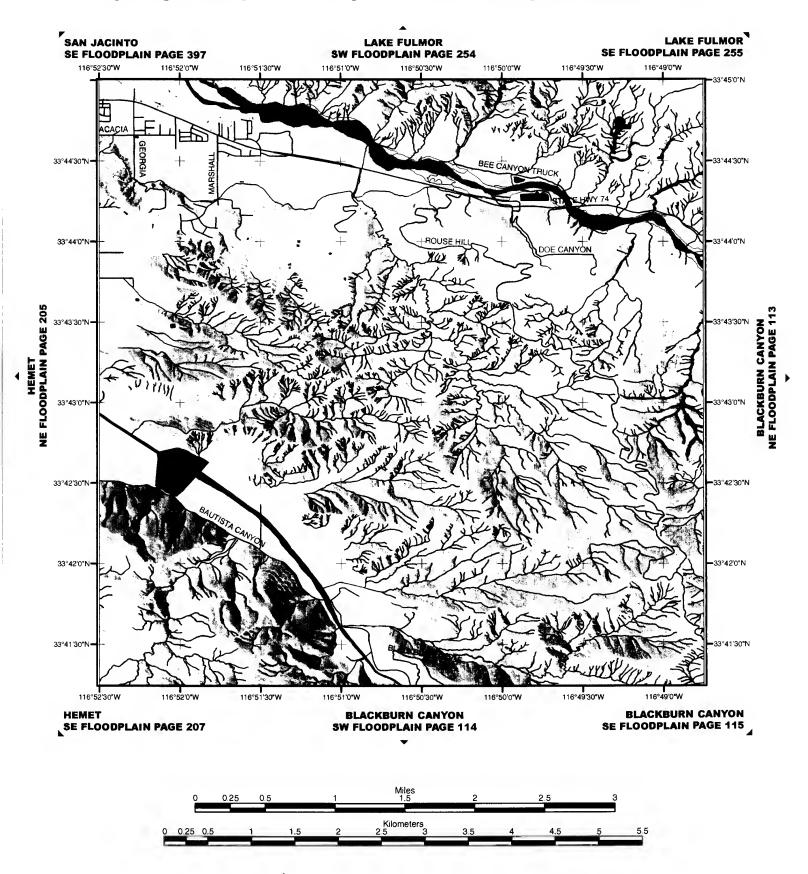
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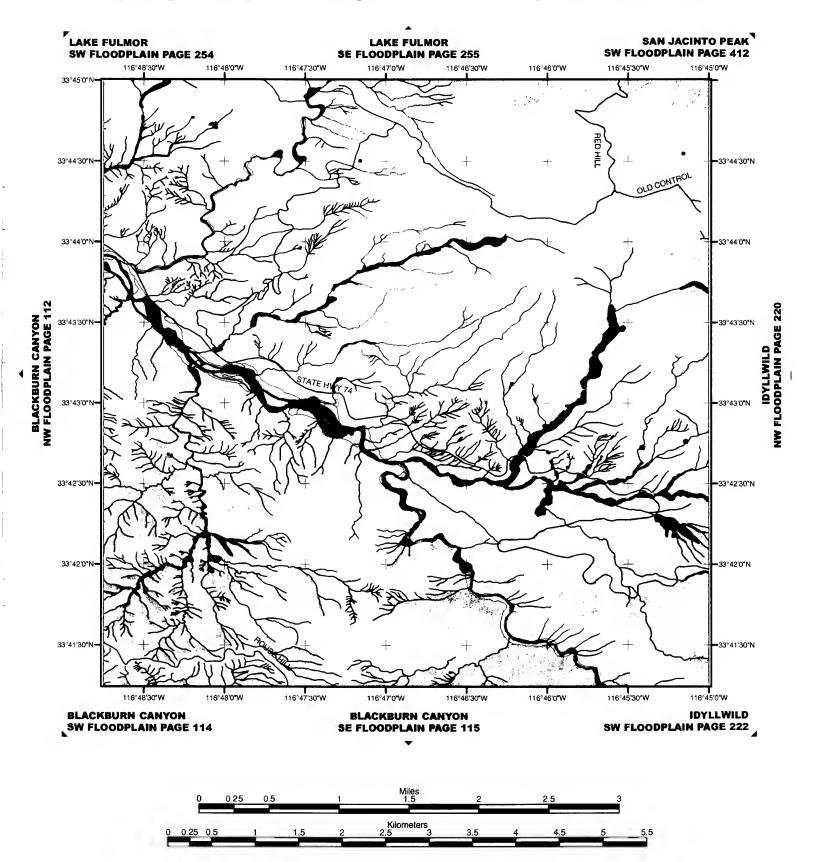
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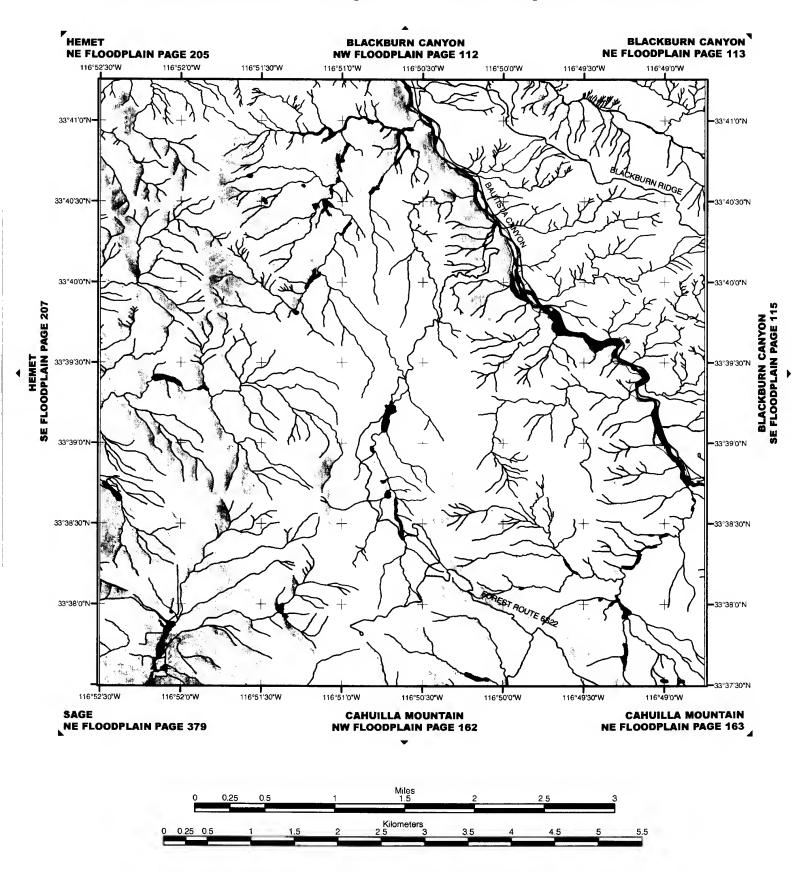
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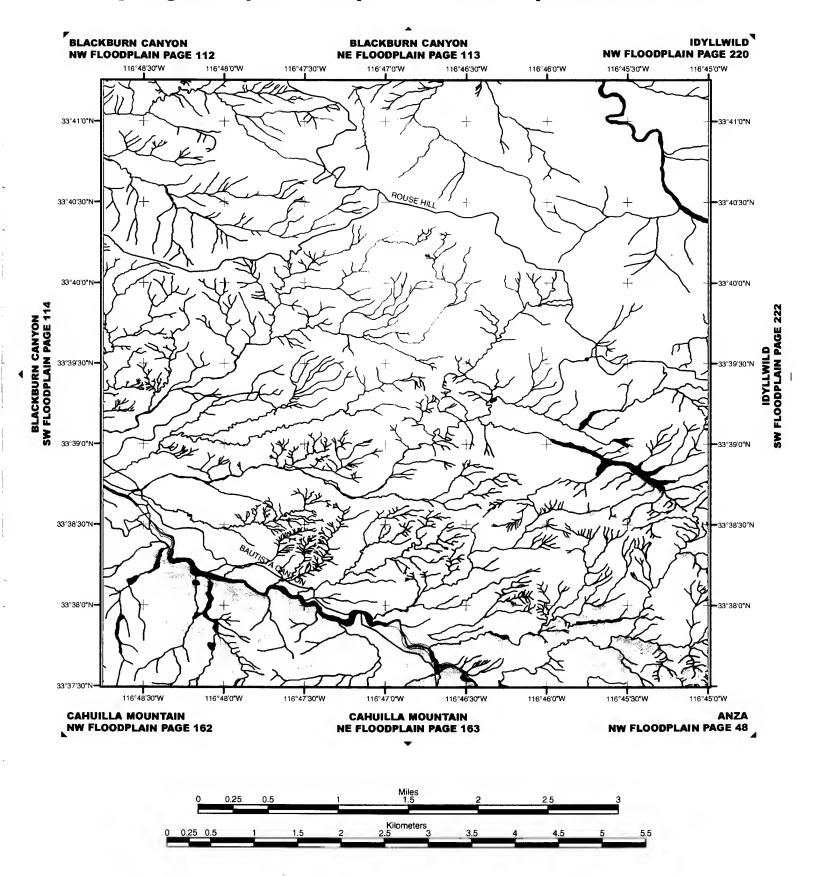
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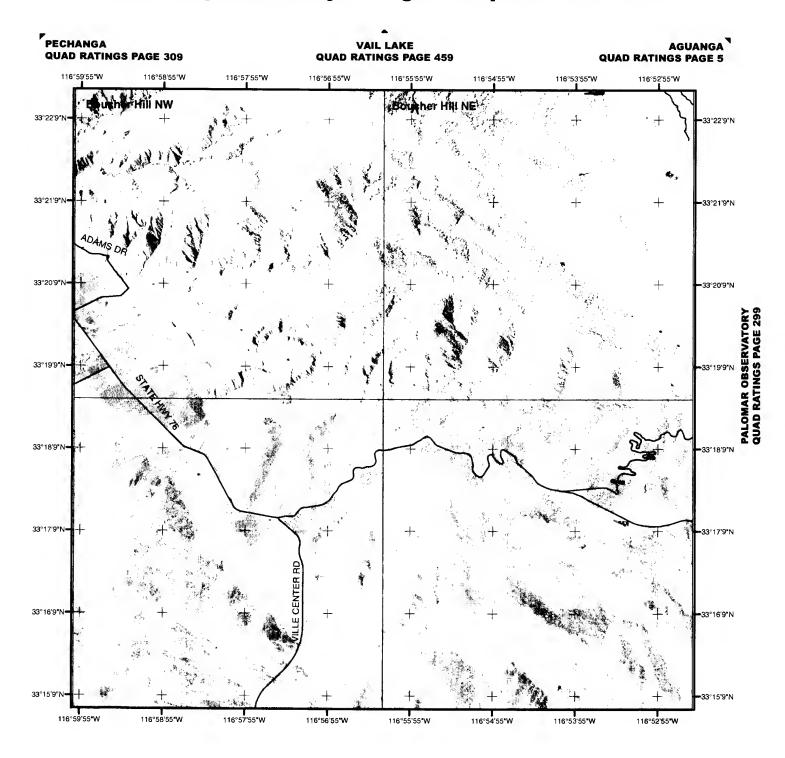
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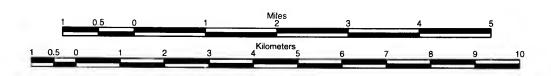


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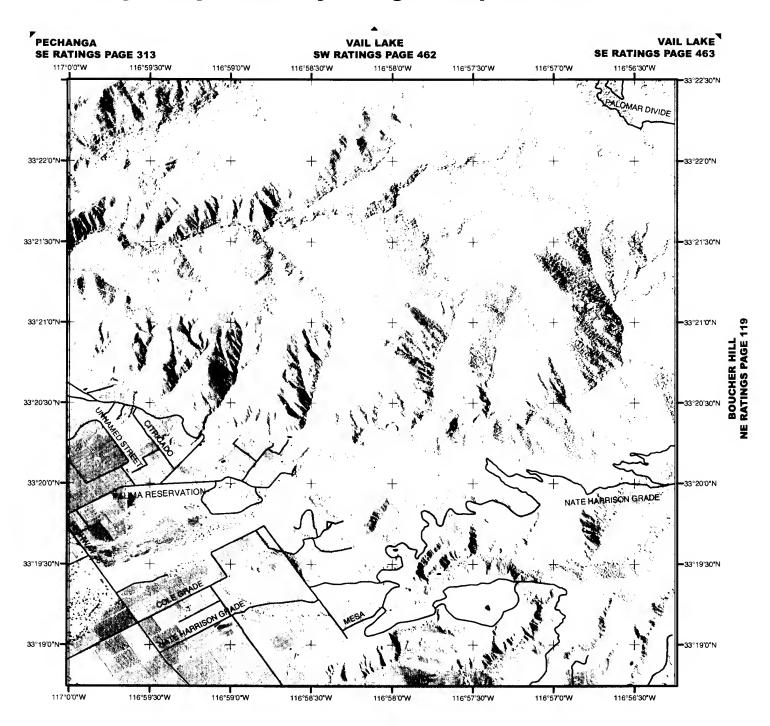


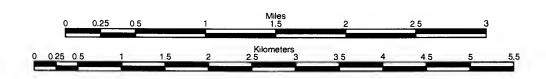
### Boucher Hill Quadrangle Regulatory Probability Ratings for Aquatic Resources



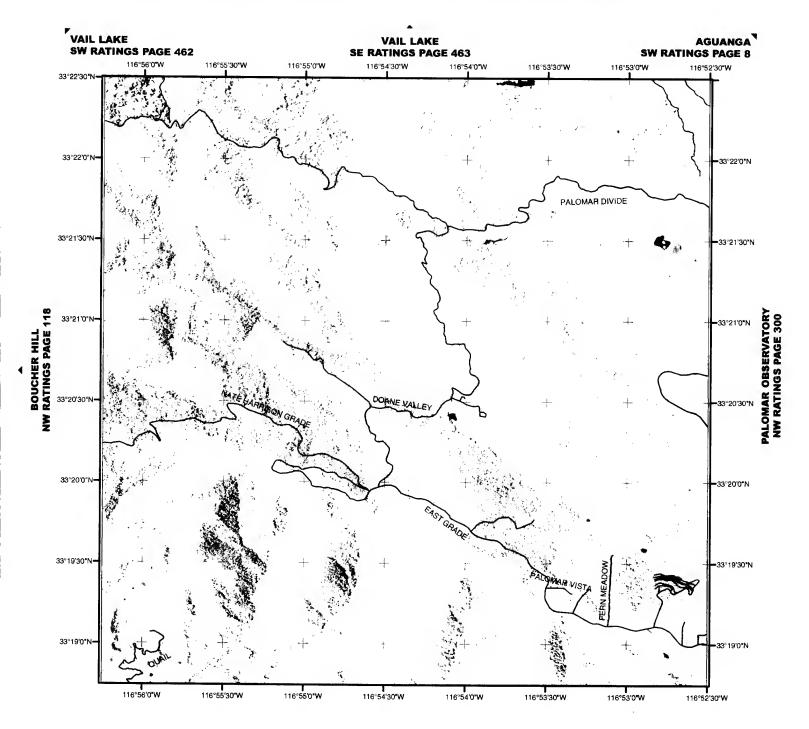


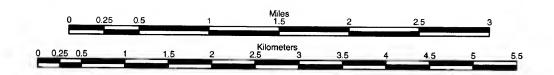
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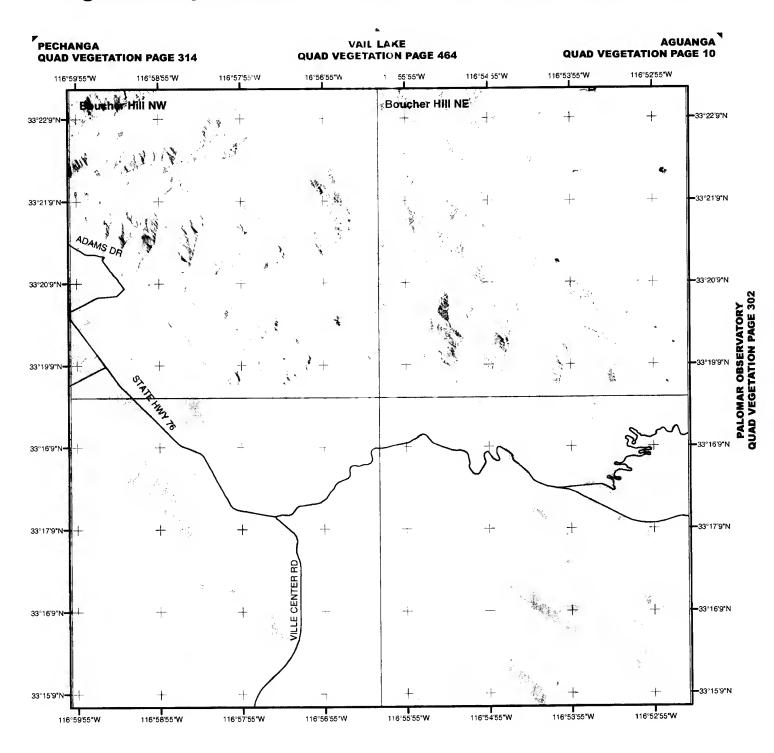


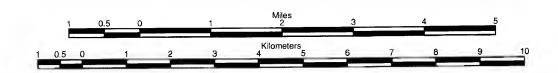
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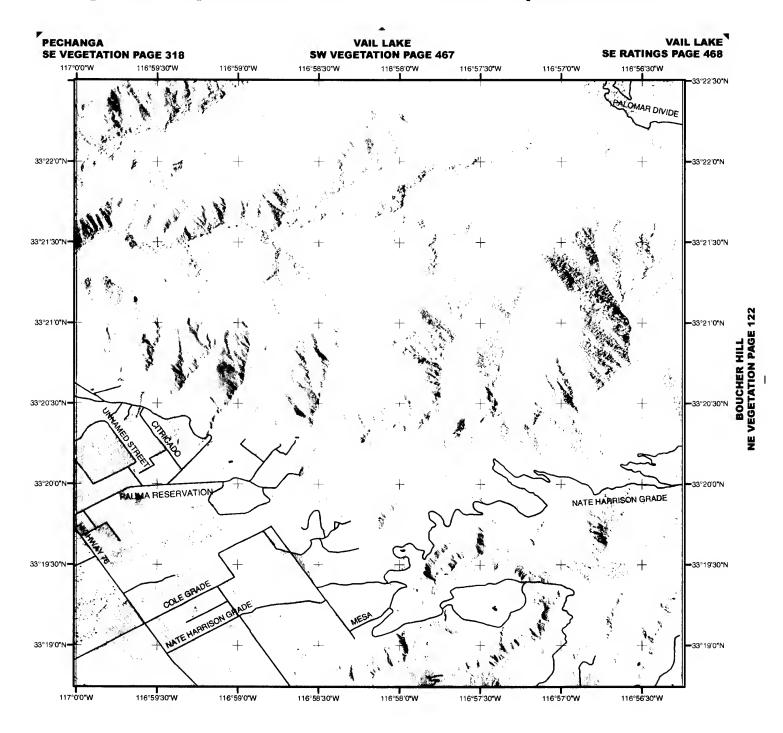


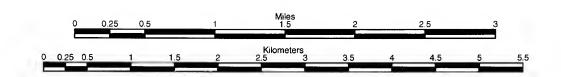
# Boucher Hili Quadrangie Vegetation Species Association Units for Aquatic Resources



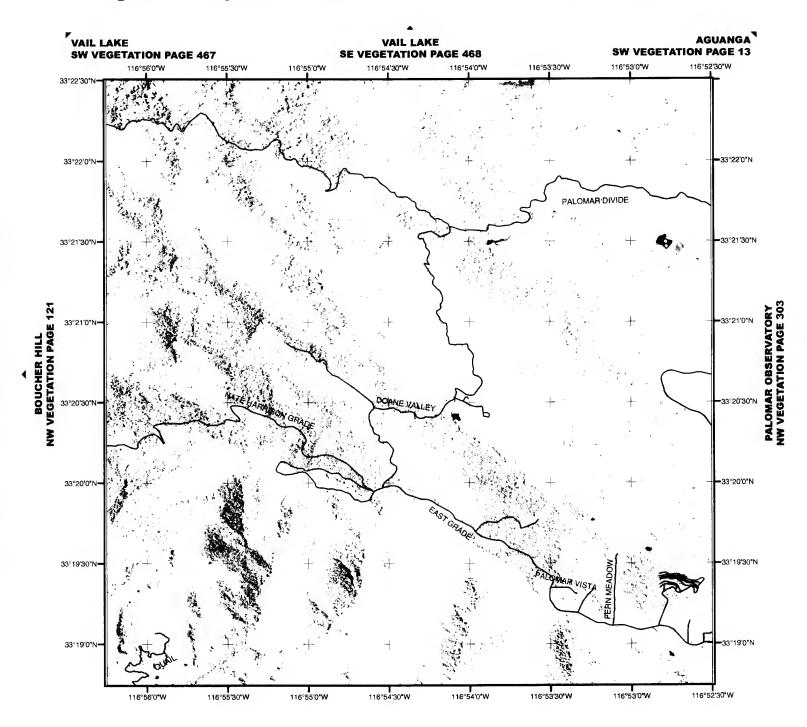


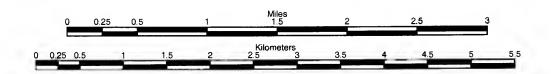
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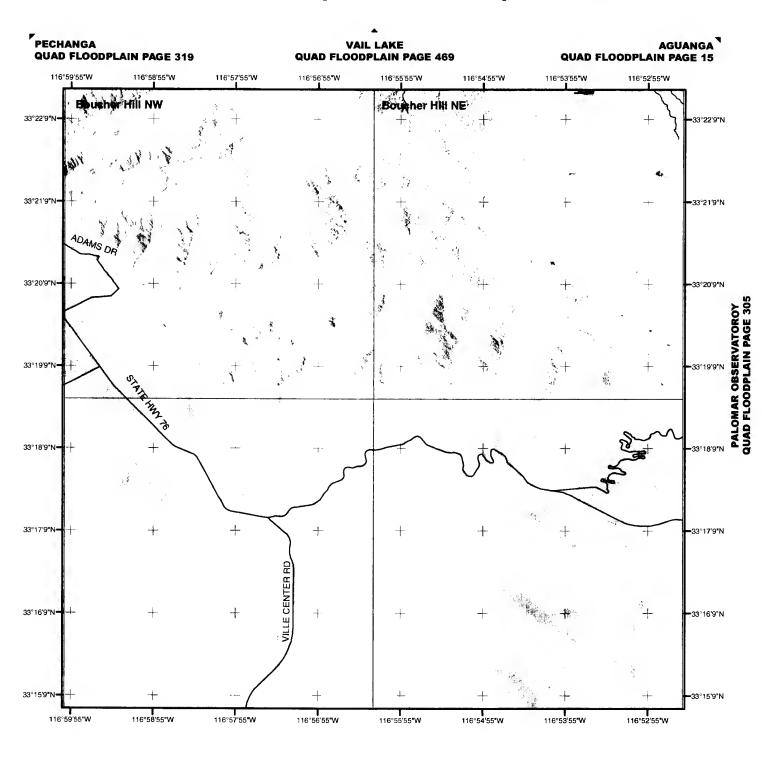


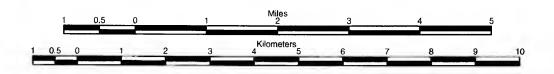
# Boucher Hill North East Quarter-Quadrangle Vegetation Species Association Units for Aquatic Resources



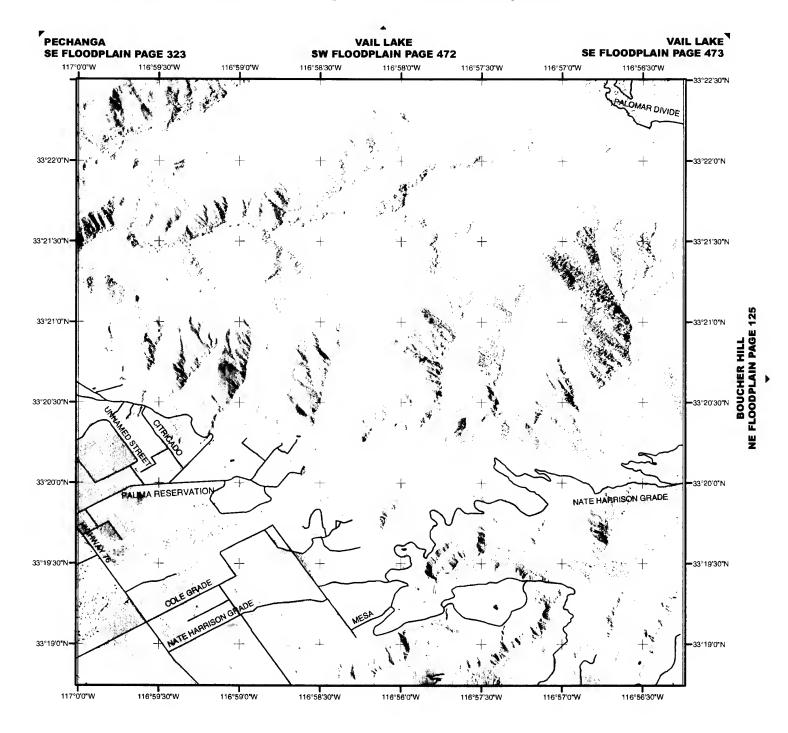


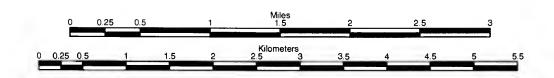
# Boucher Hill Quadrangle Hydrogeomorphic Floodplain Units for Aquatic Resources



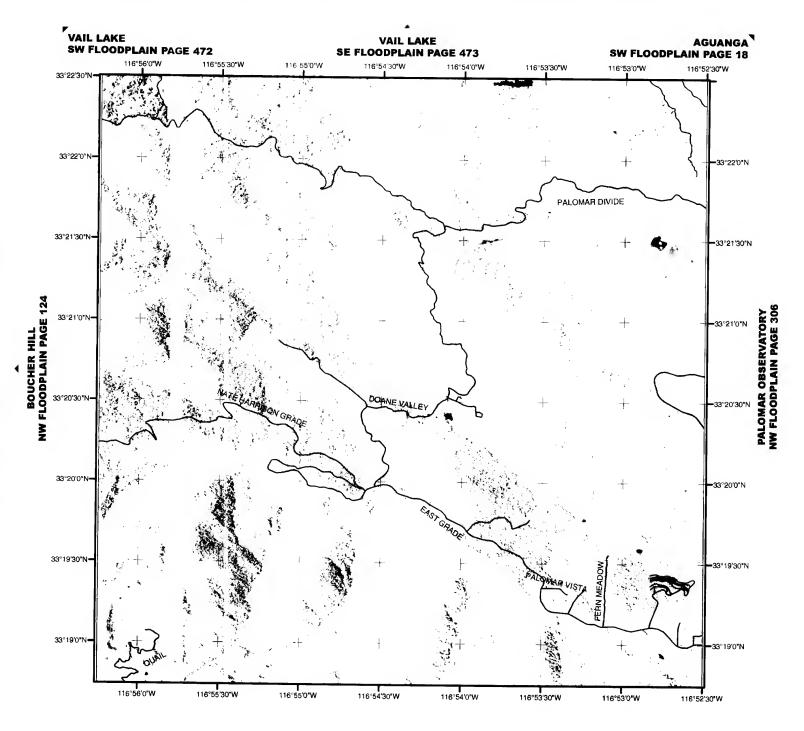


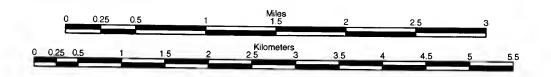
#### Boucher Hill North West Quarter-Quadrangle Hydrogeomorphic Floodplain Units for Aquatic Resources



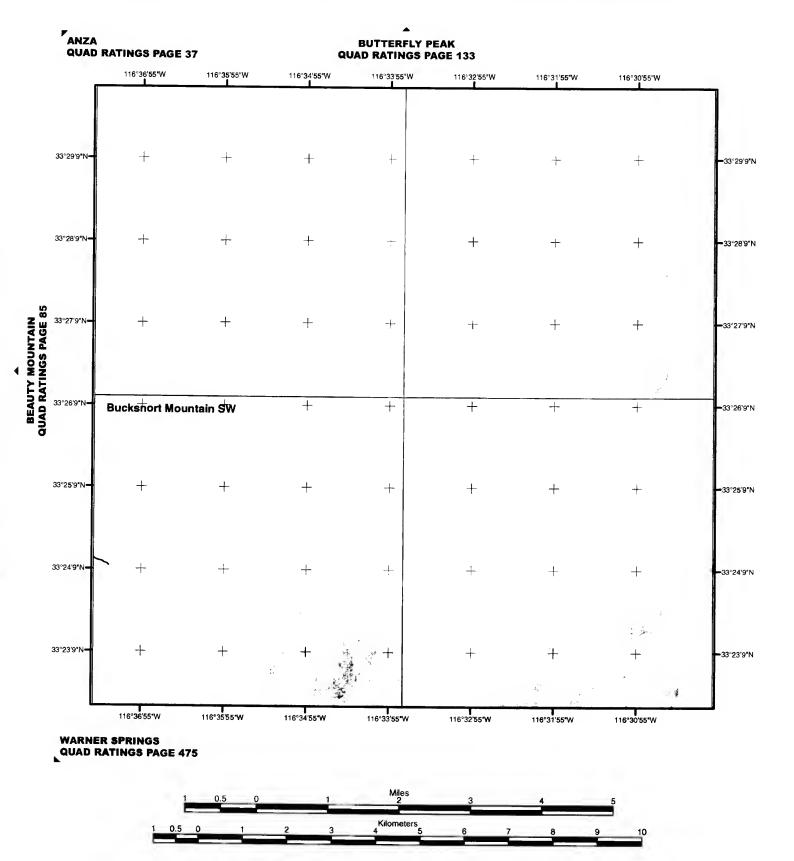


### Boucher Hill North East Quarter-Quadrangle Hydrogeomorphic Floodplain Units for Aquatic Resources

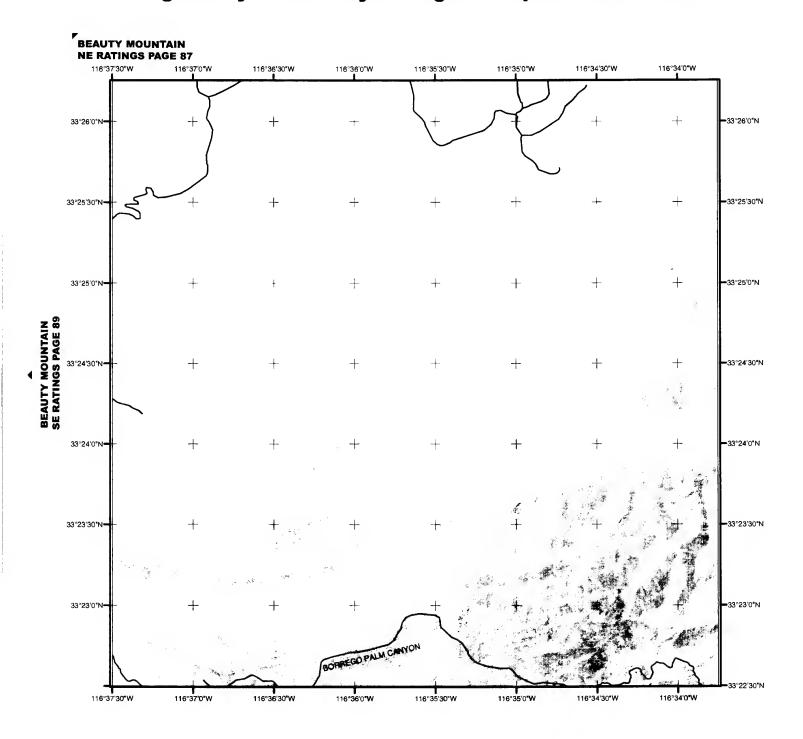


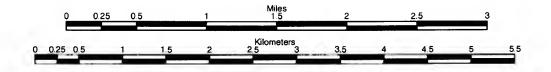


### Bucksnort Mountain Quadrangle Regulatory Probability Ratings for Aquatic Resources

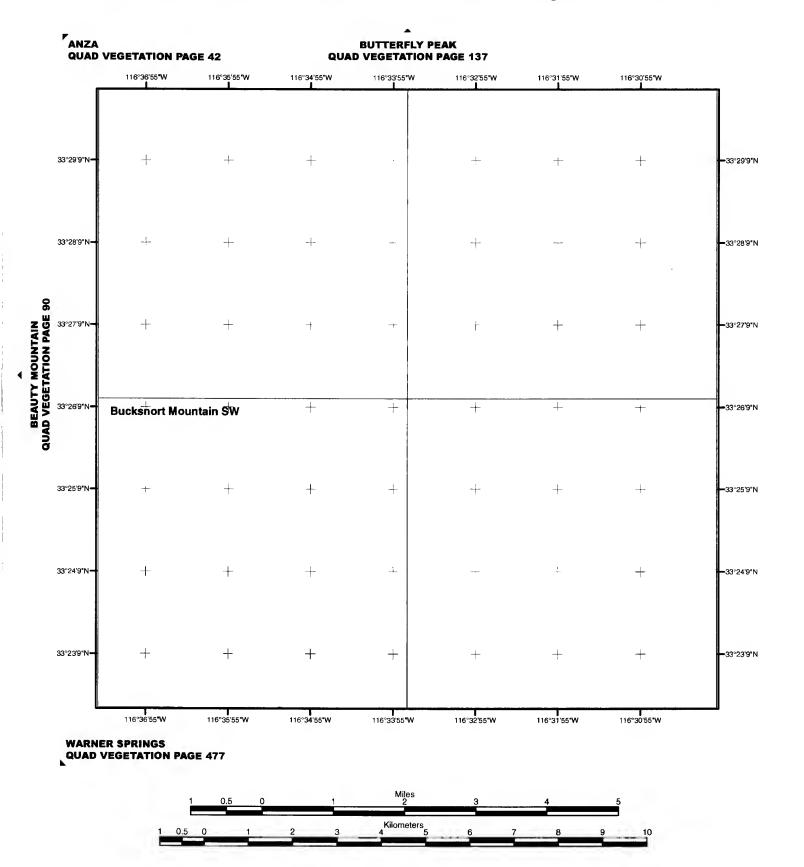


## **Bucksnort Mountain South West Quarter-Quadrangle Regulatory Probability Ratings for Aquatic Resources**

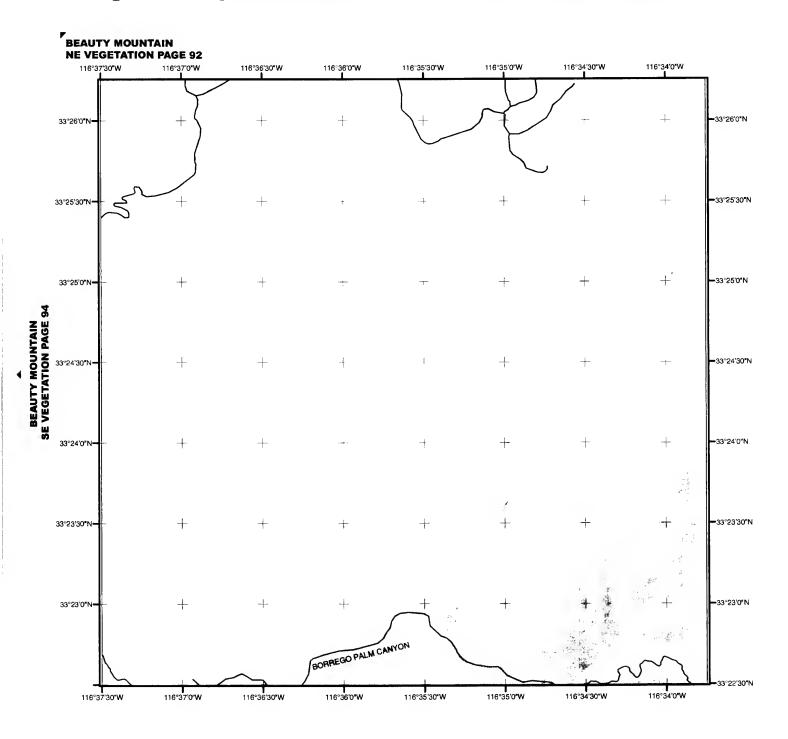


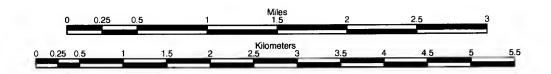


## Bucksnort Mountain Quadrangle Vegetation Species Association Units for Aquatic Resources

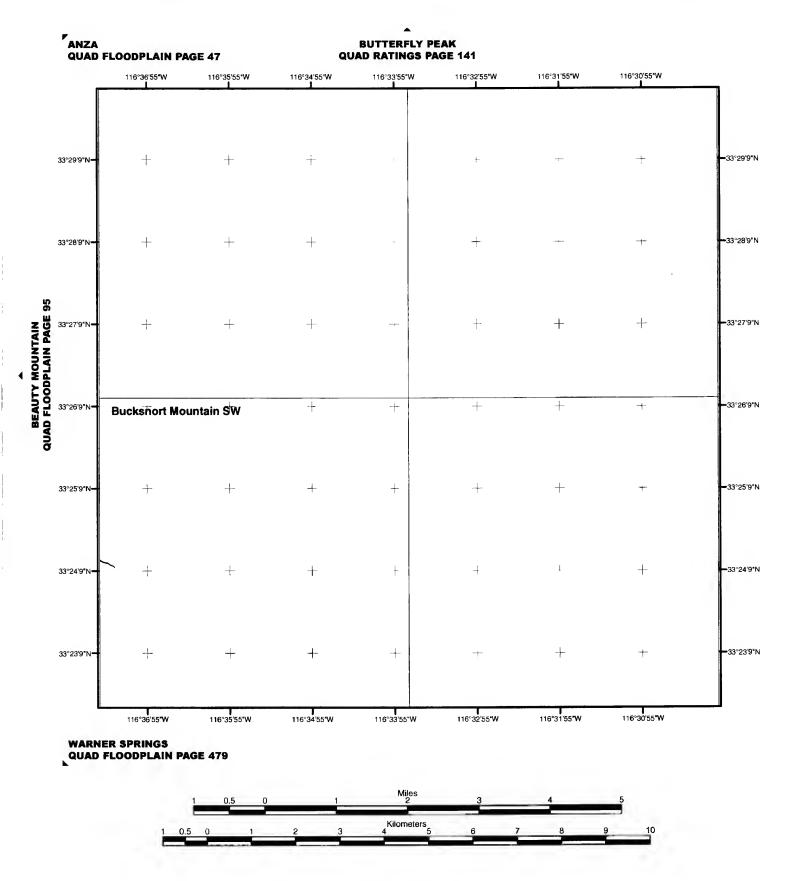


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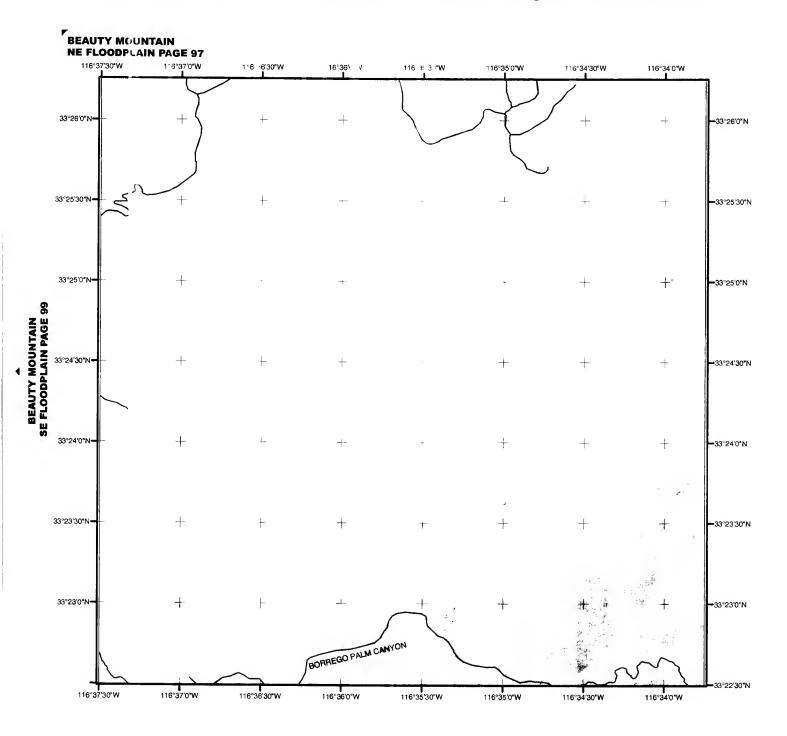


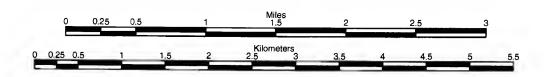


## Bucksnort Mountain Quadrangle Hydrogeomorphic Floodplain Units for Aquatic Resources

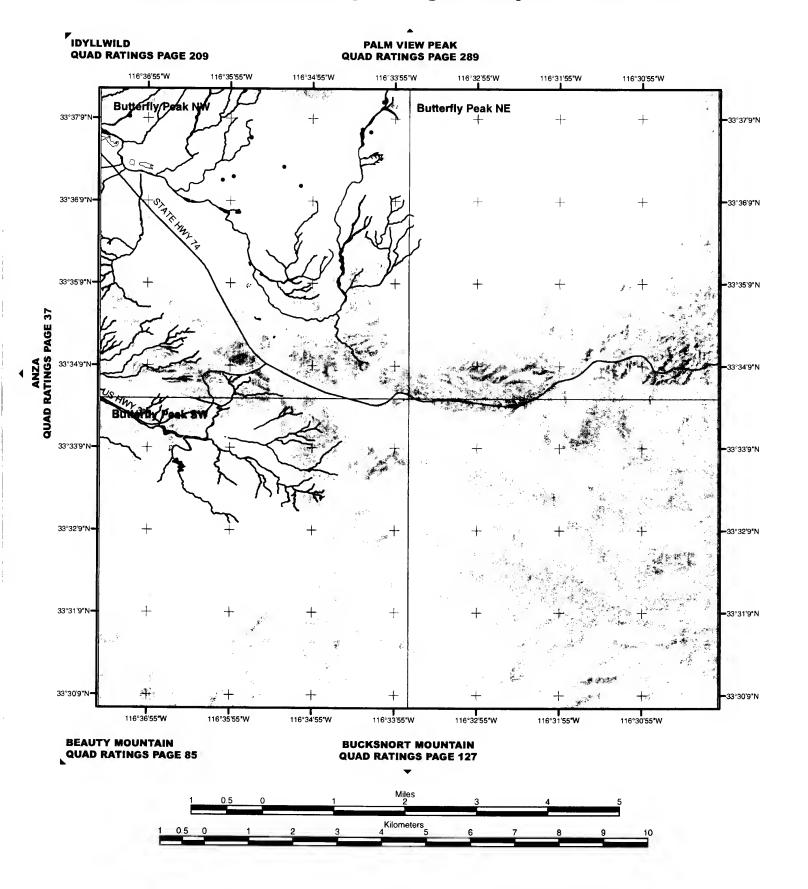


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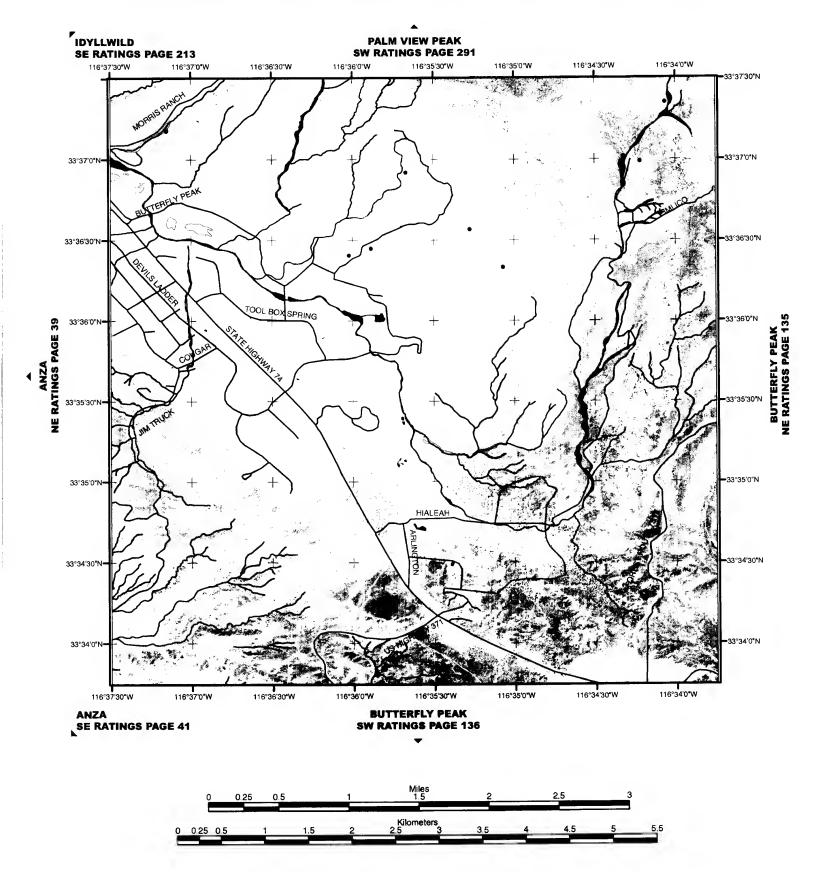




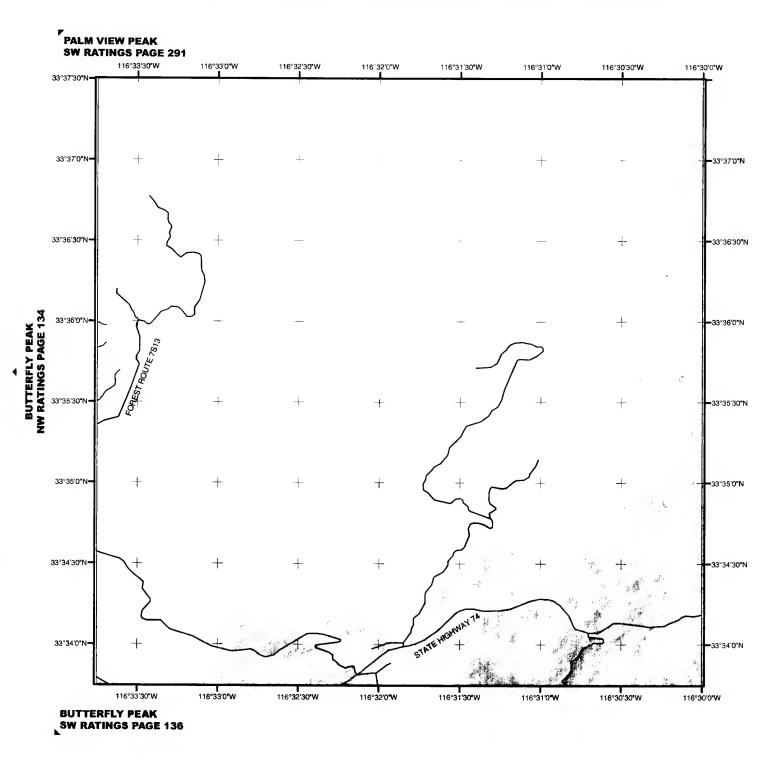
### Butterfly Peak Quadrangle Regulatory Probability Ratings for Aquatic Resources

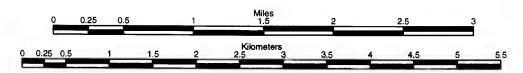


#### Butterfly Peak North West Quarter-Quadrangle Regulatory Probability Ratings for Aquatic Resources

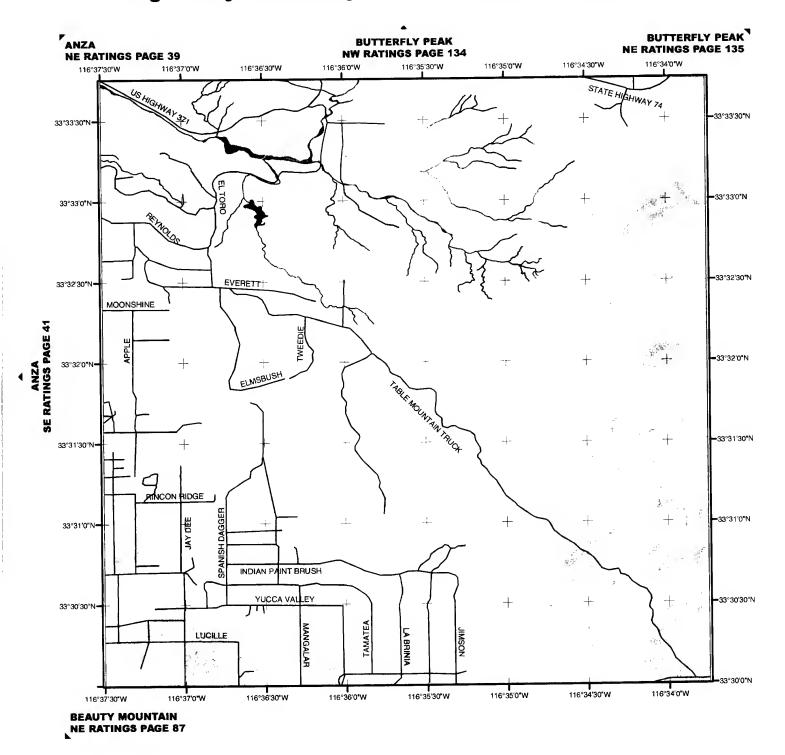


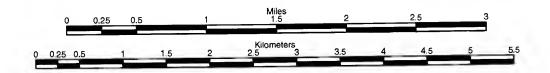
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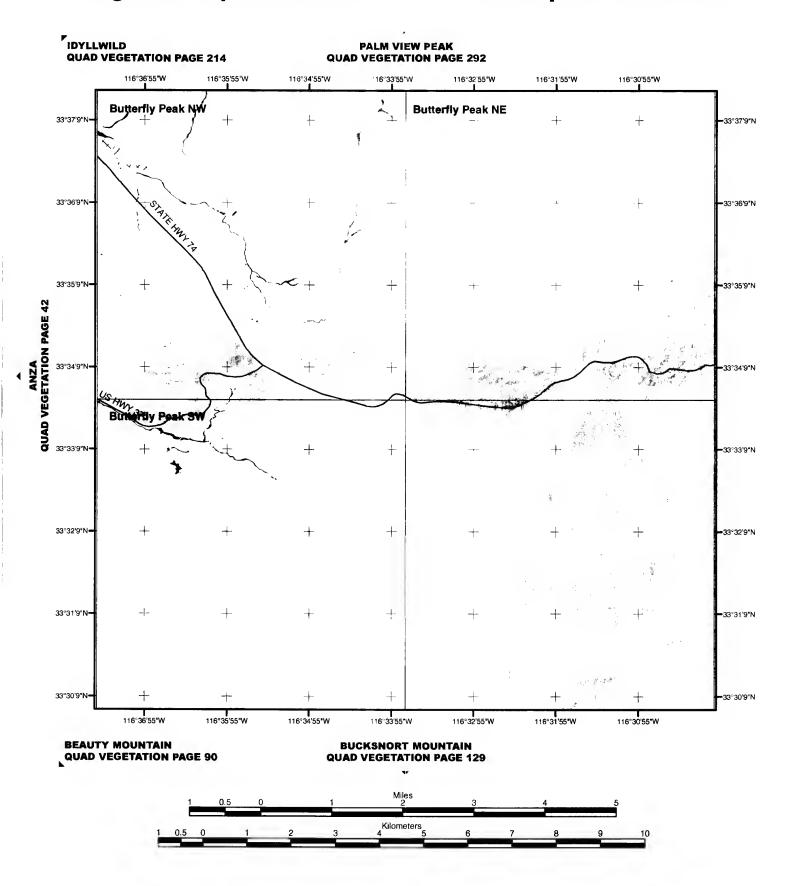


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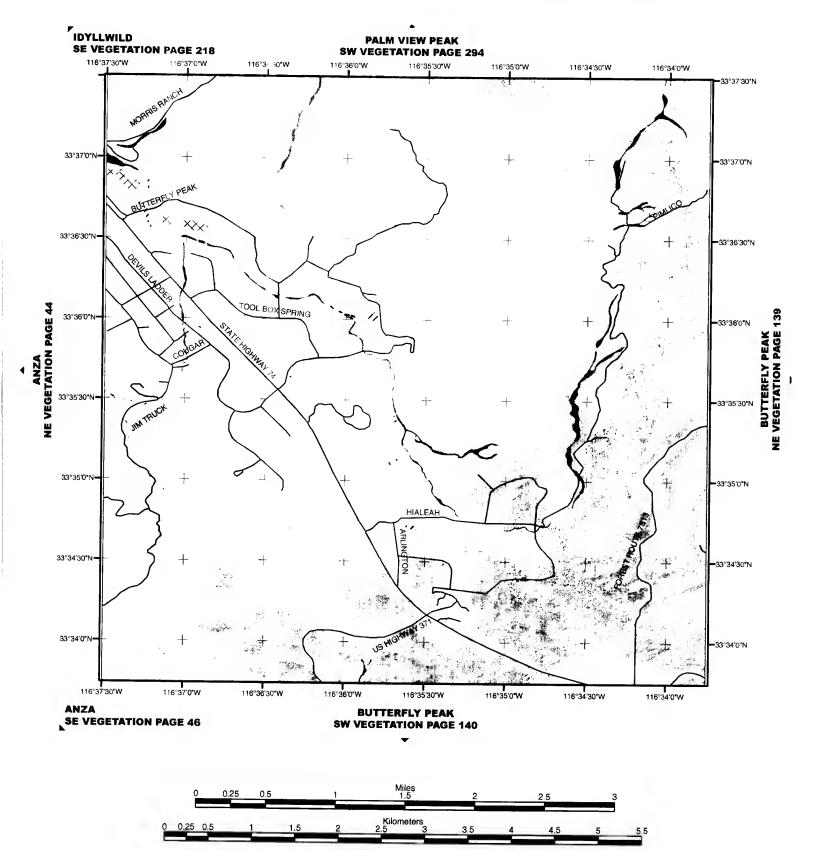




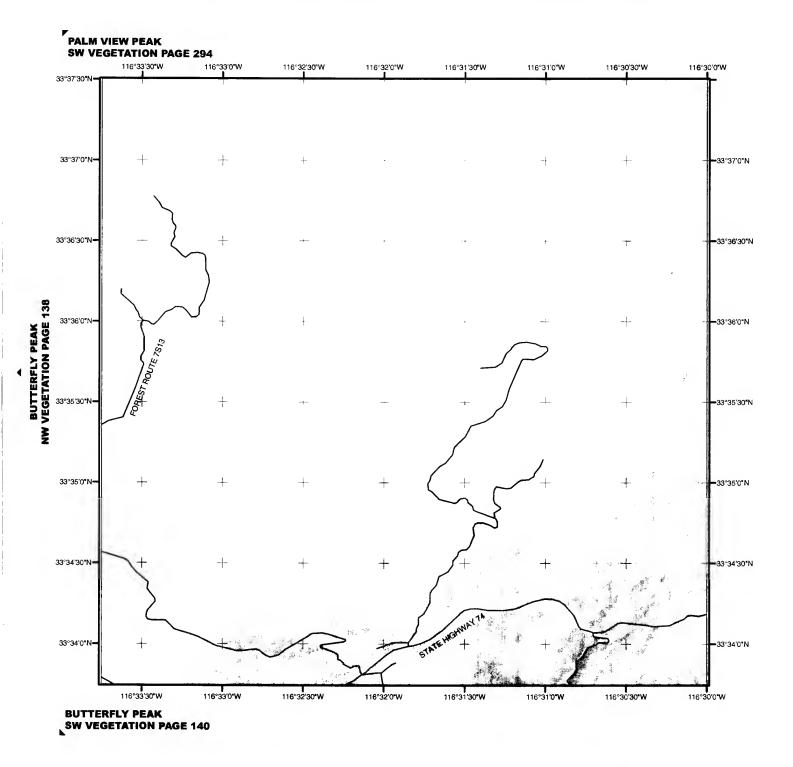
## Butterfly Peak Quadrangle Vegetation Species Association Units for Aquatic Resources

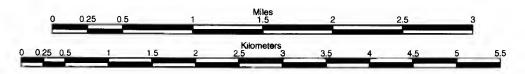


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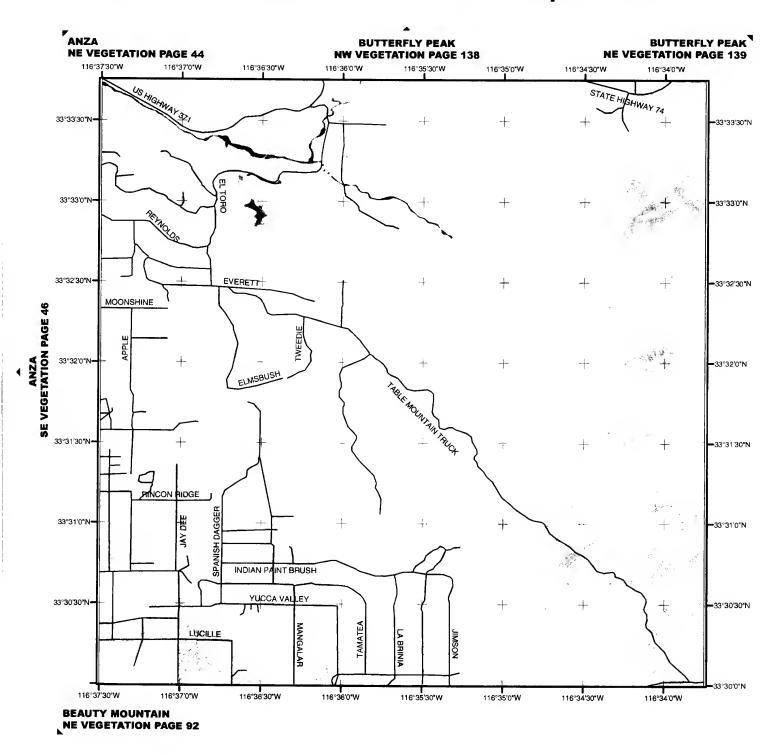


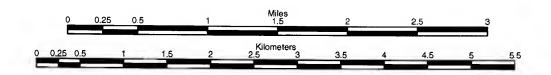
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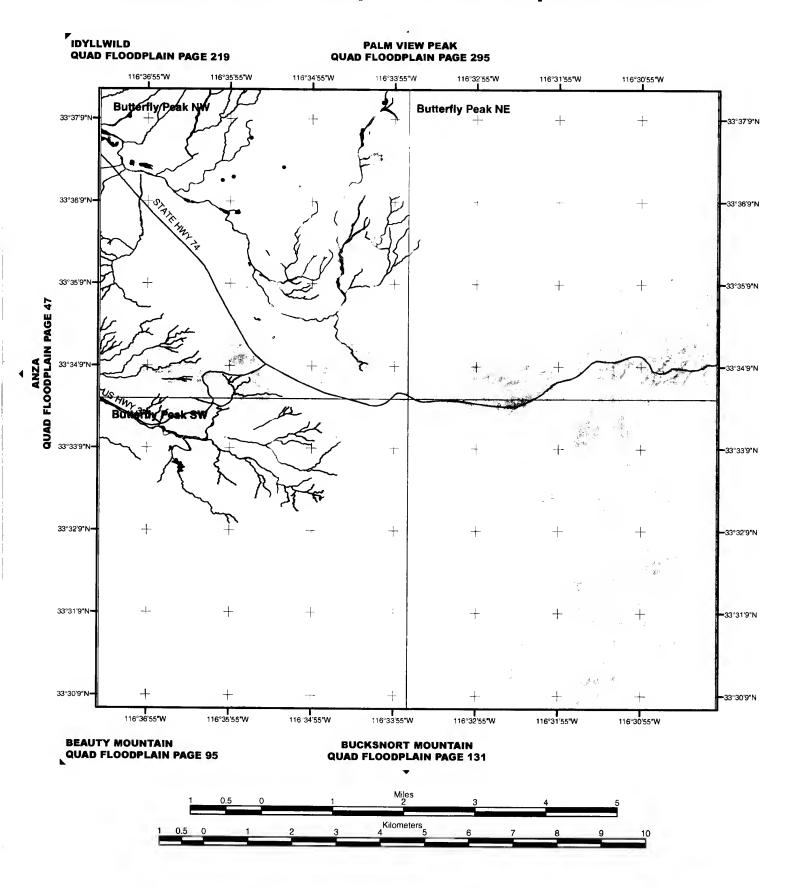


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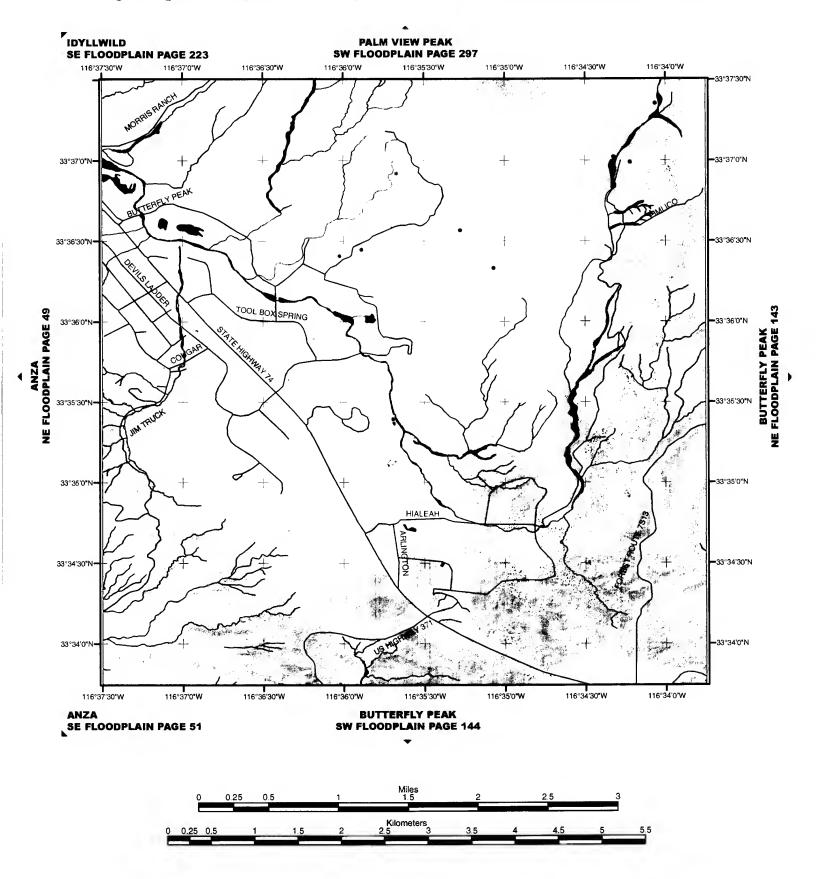




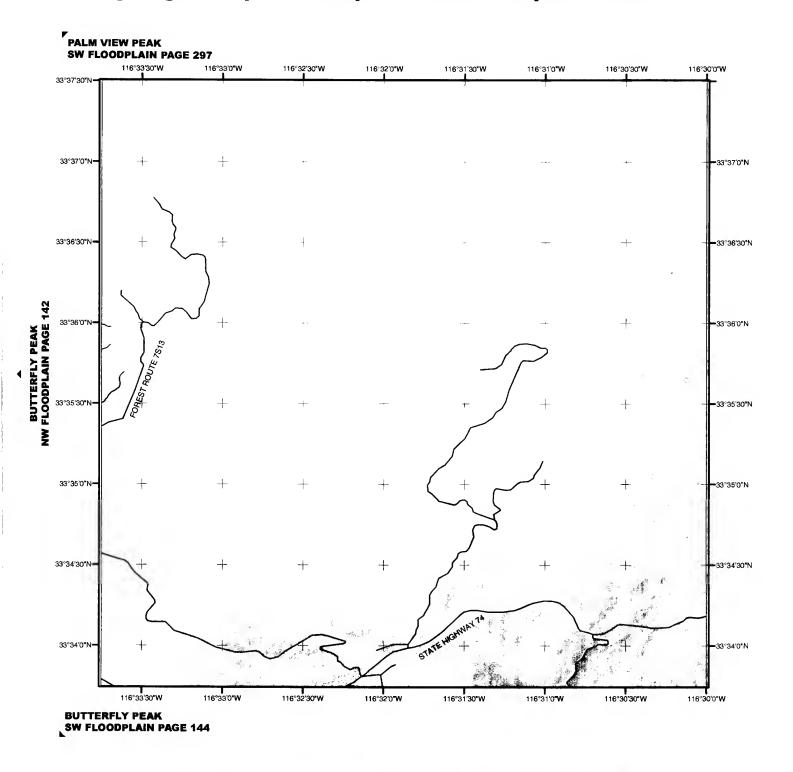
### Butterfly Peak Quadrangle Hydrogeomorphic Floodplain Units for Aquatic Resources

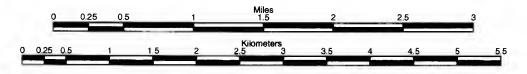


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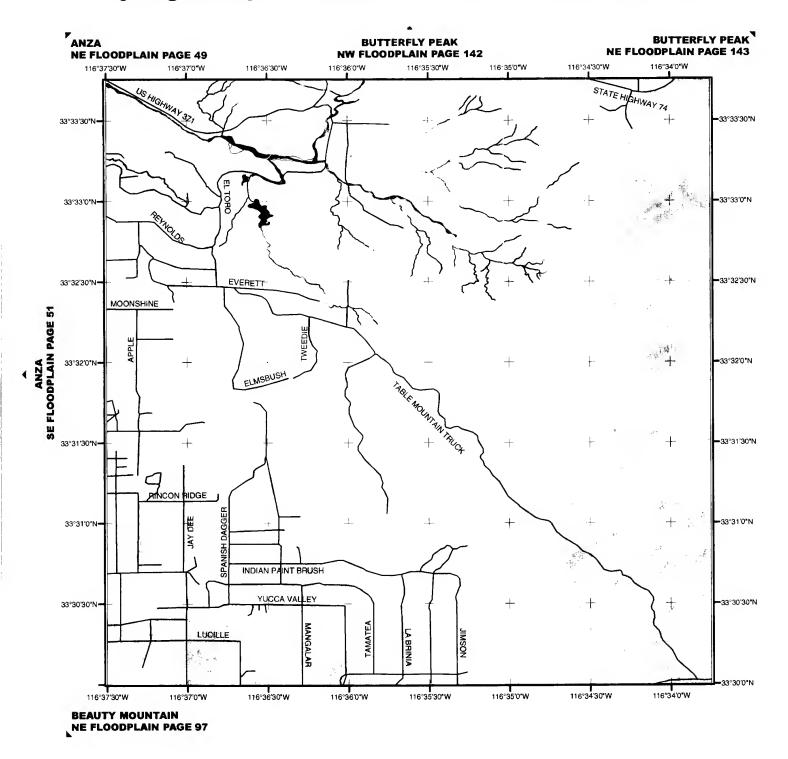


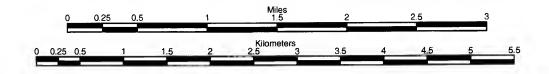
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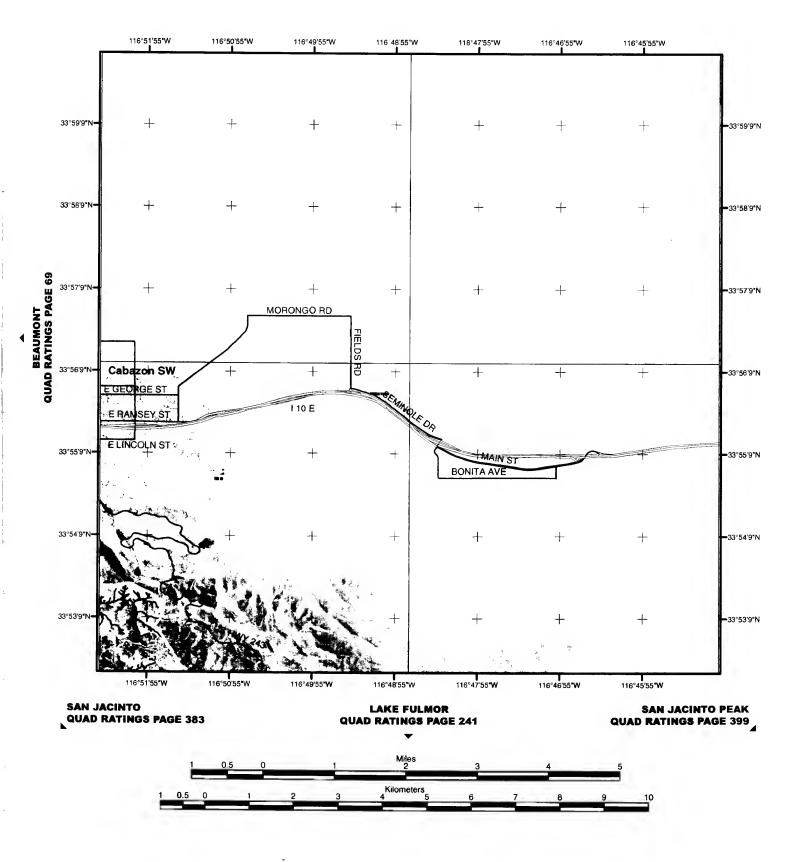


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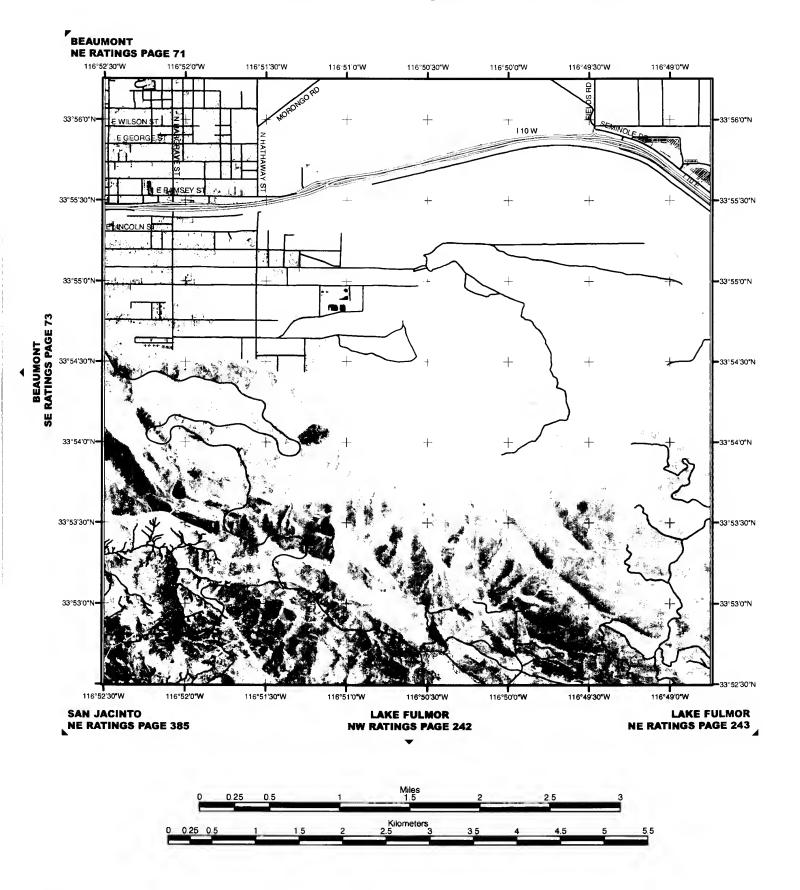




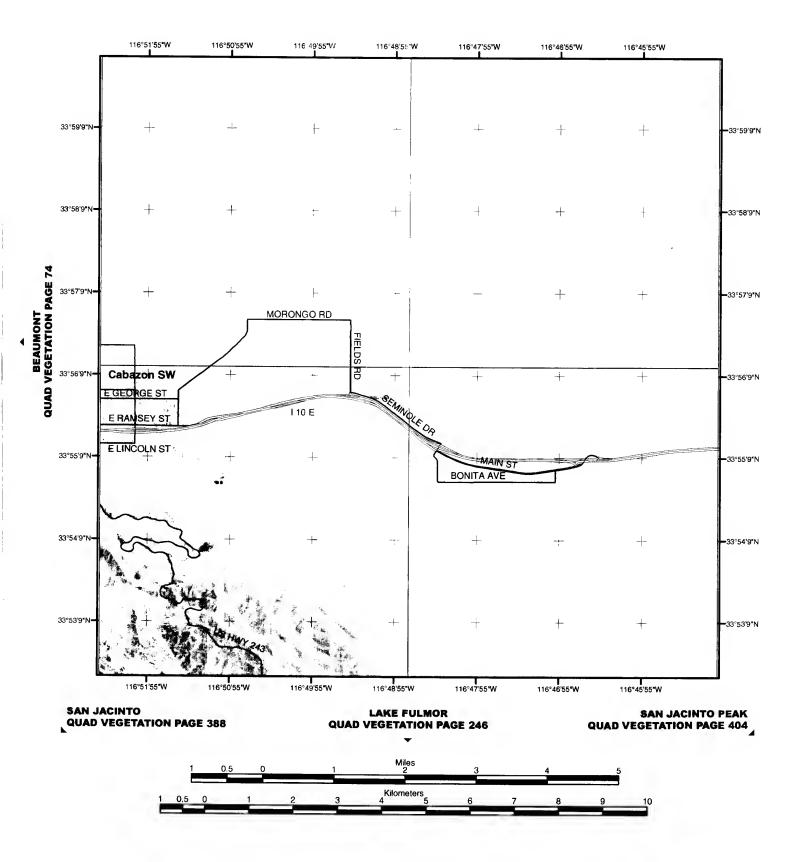
### Cabazon Quadrangle Regulatory Probability Ratings for Aquatic Resources



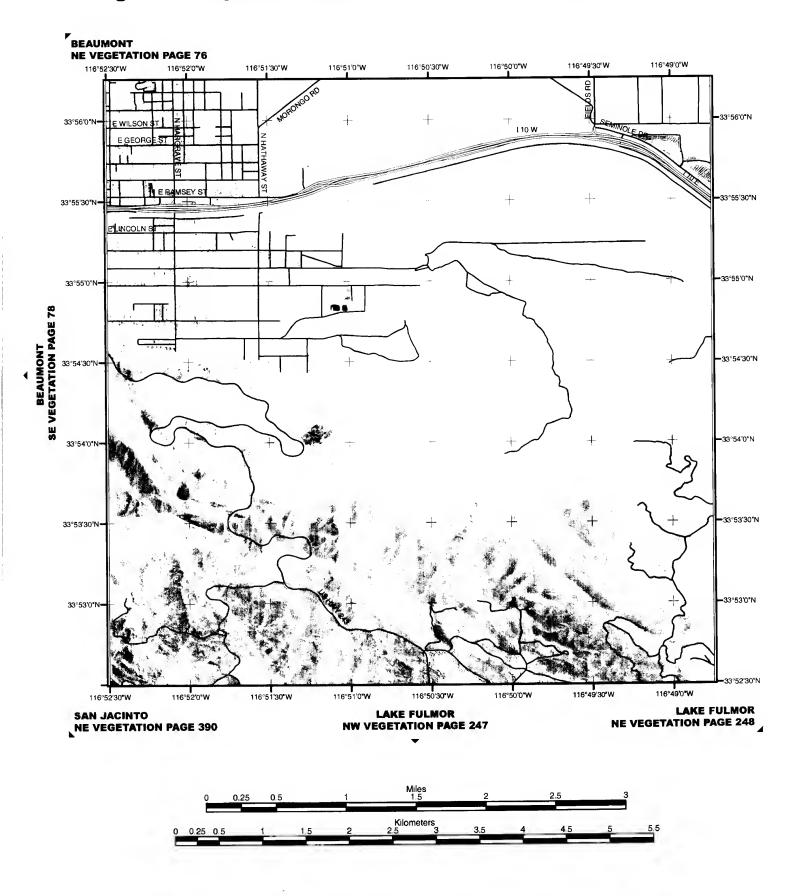
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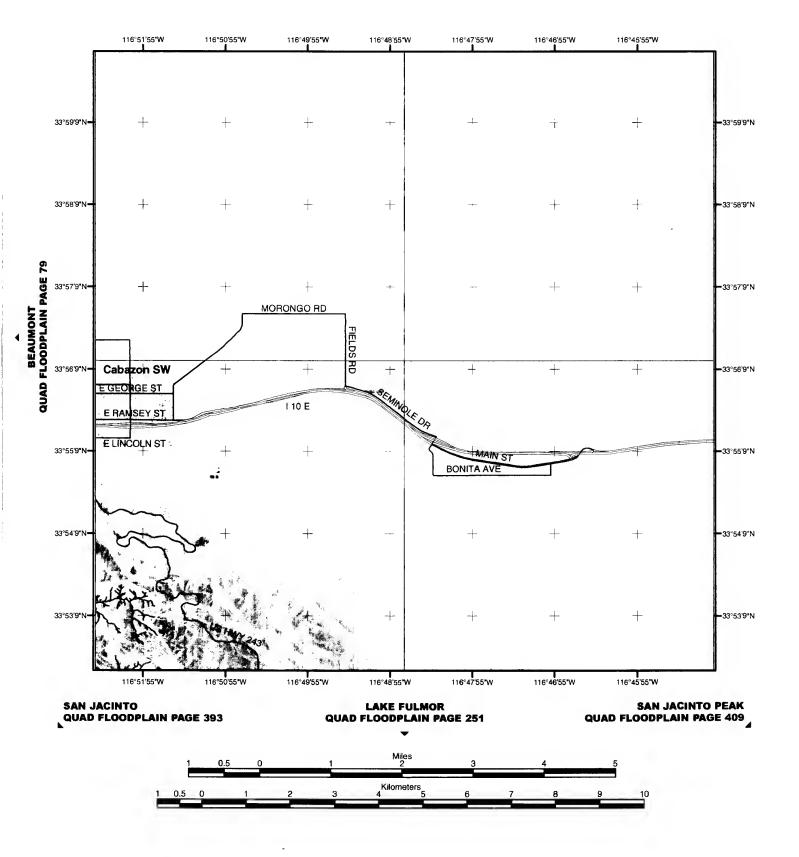
# Cabazon Quadrangle Vegetation Species Association Units for Aquatic Resources



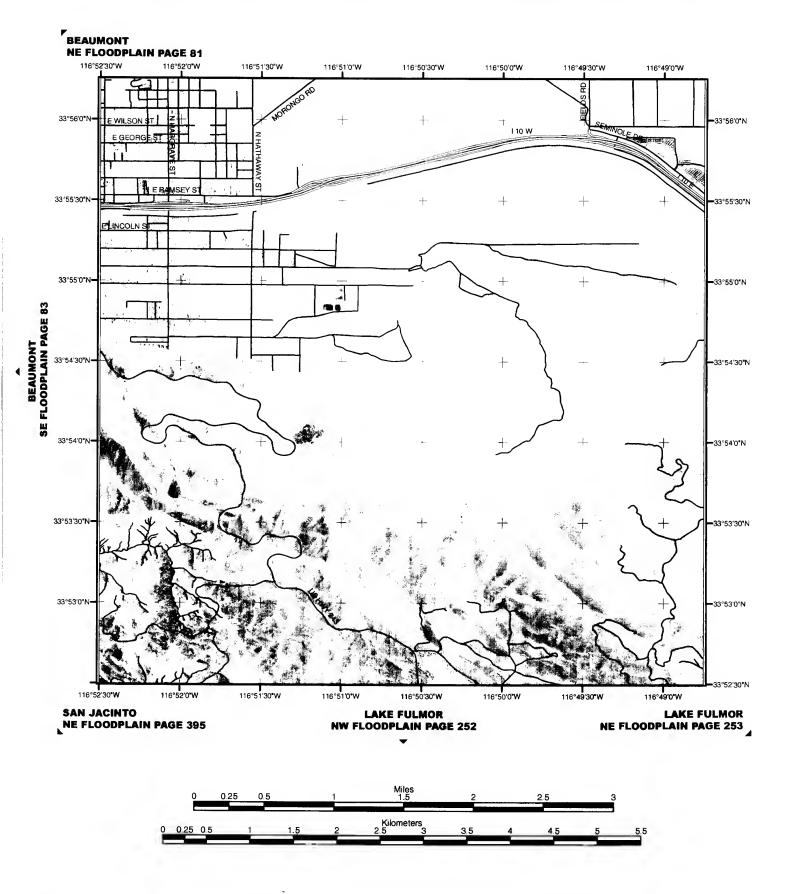
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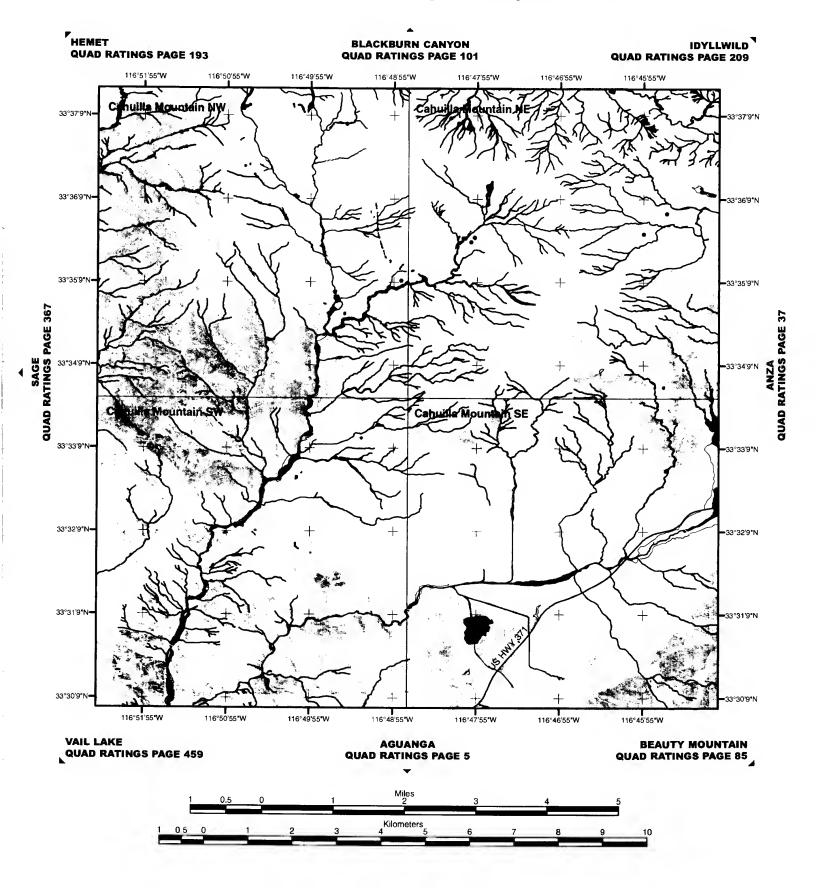
# Cabazon Quadrangle Hydrogeomorphic Floodplain Units for Aquatic Resources



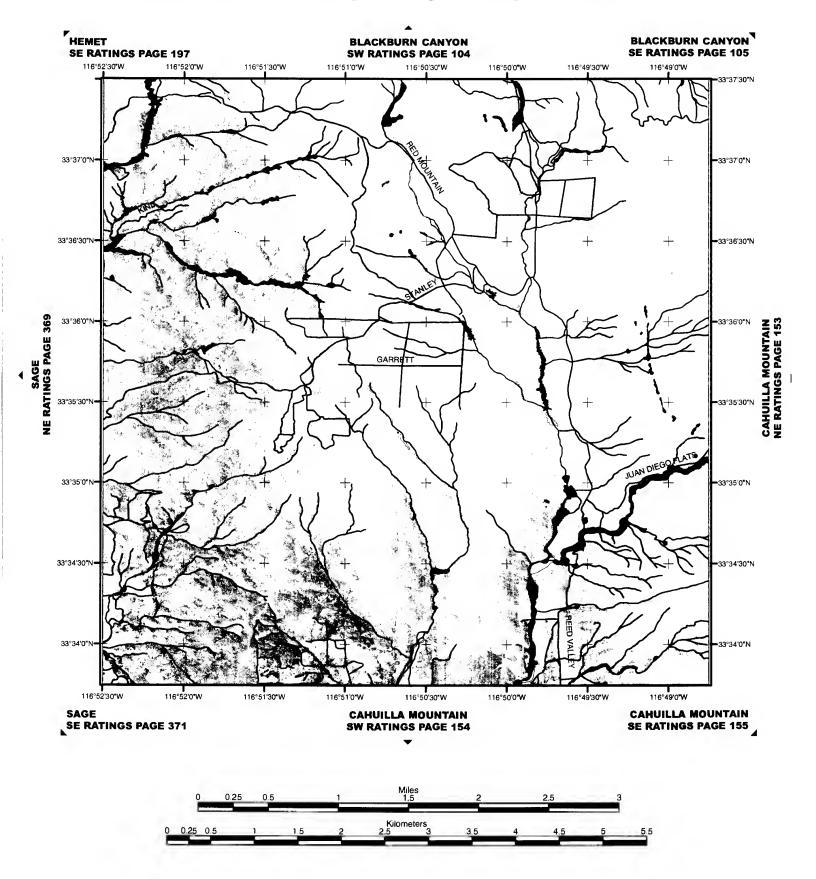
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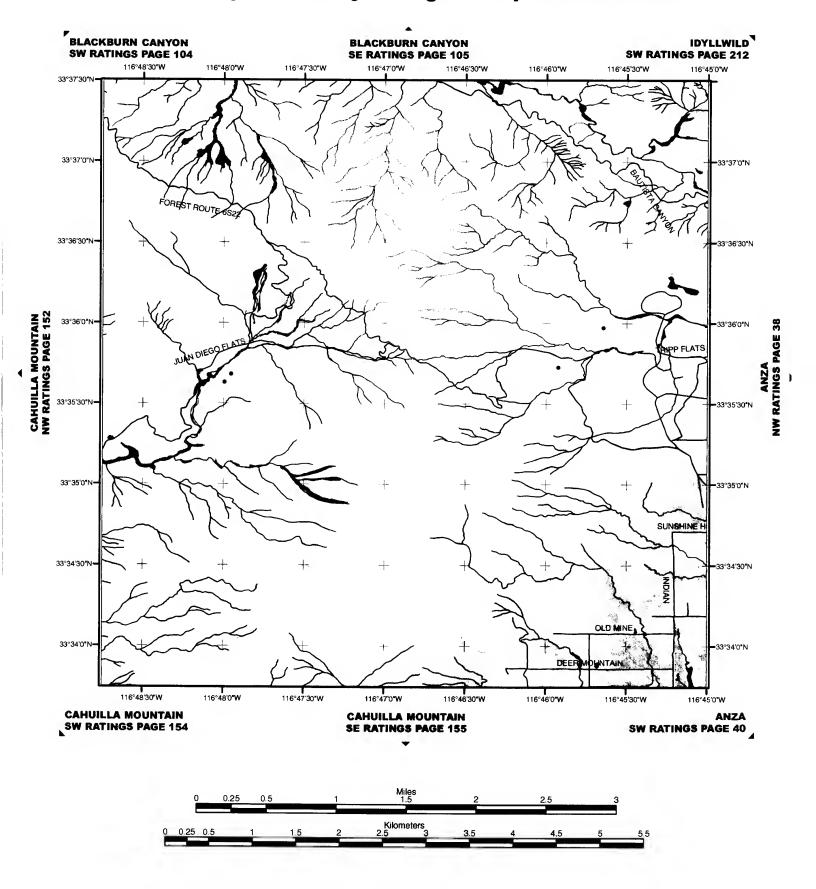
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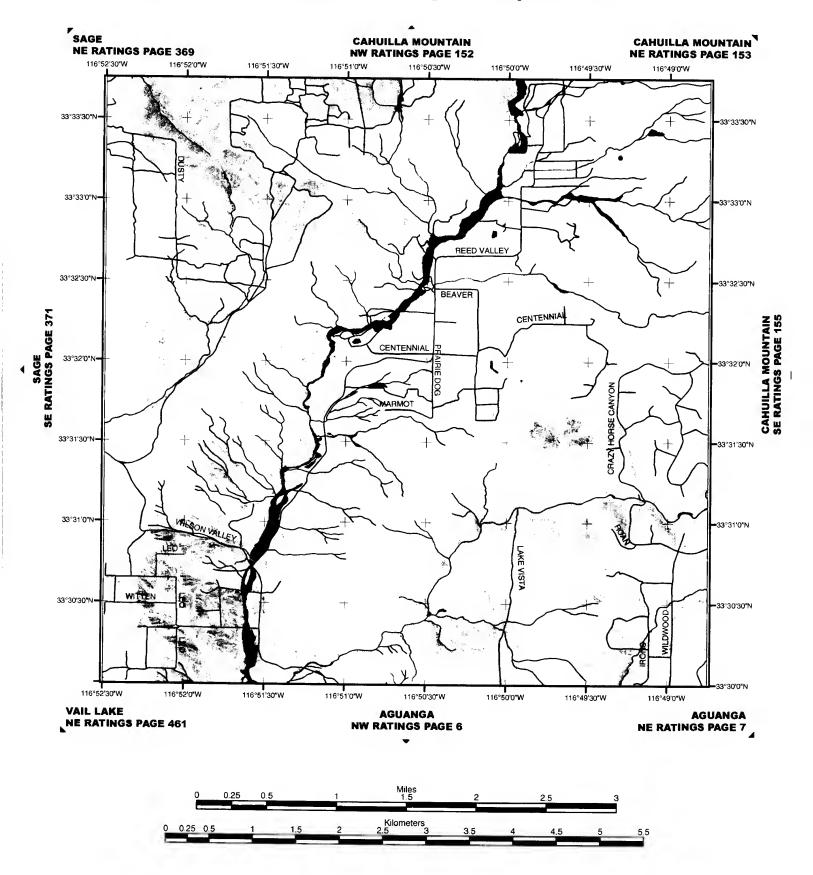
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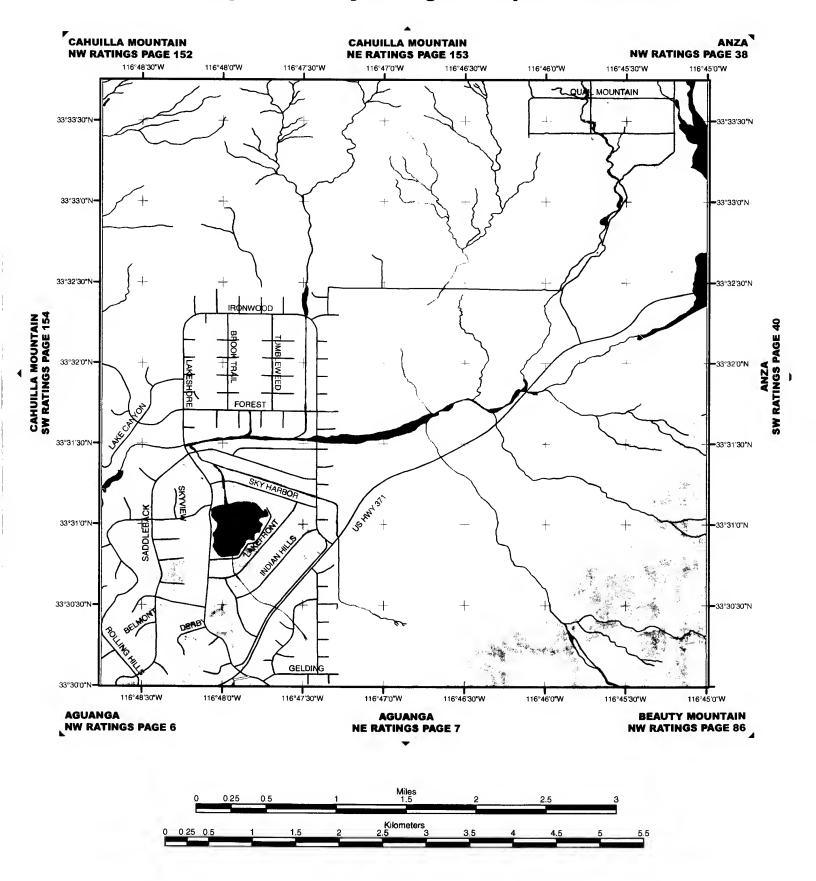
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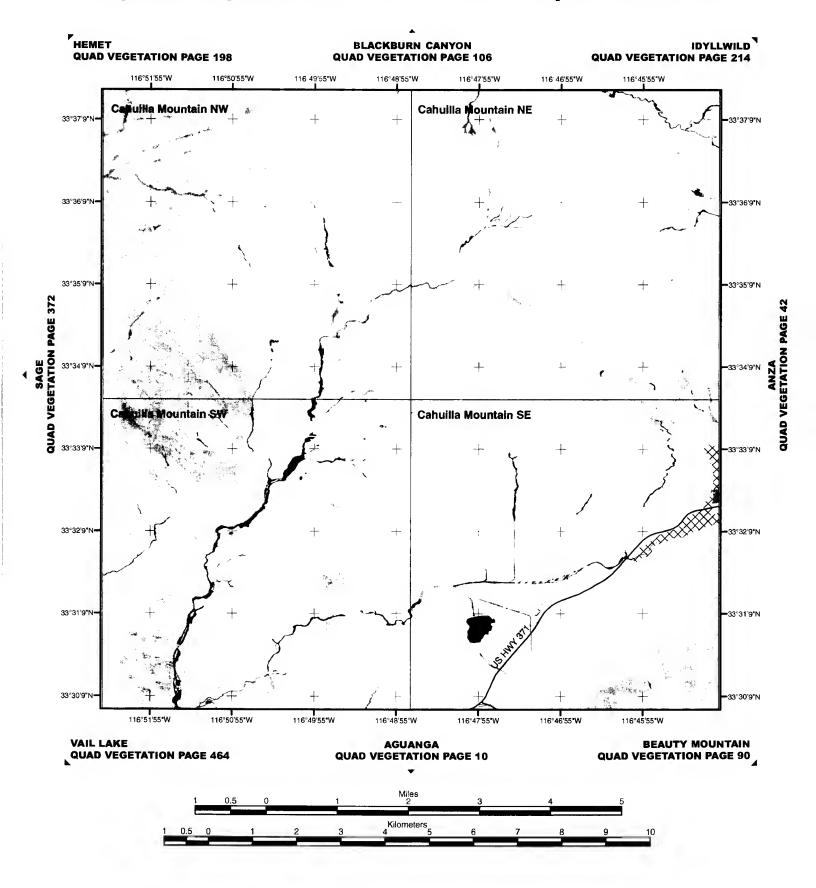
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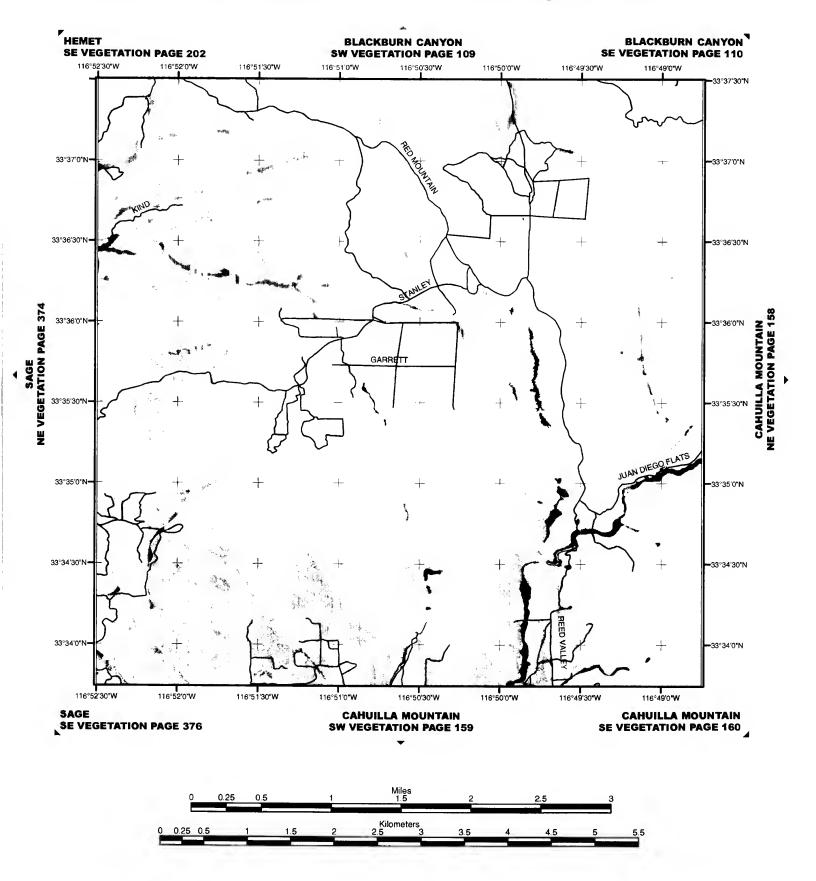
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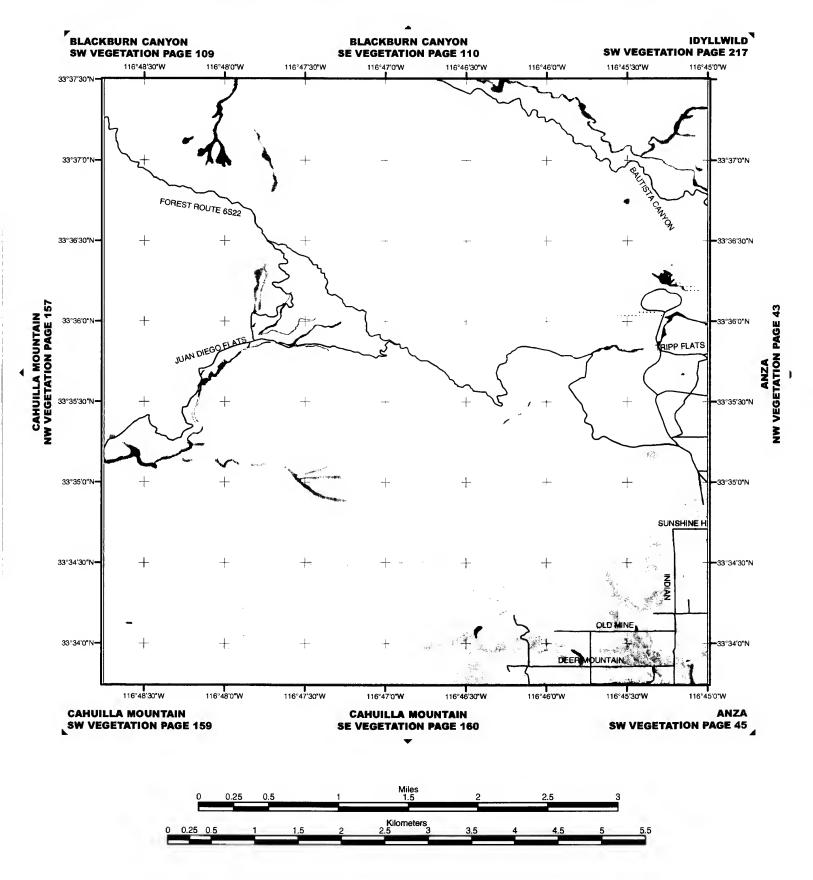
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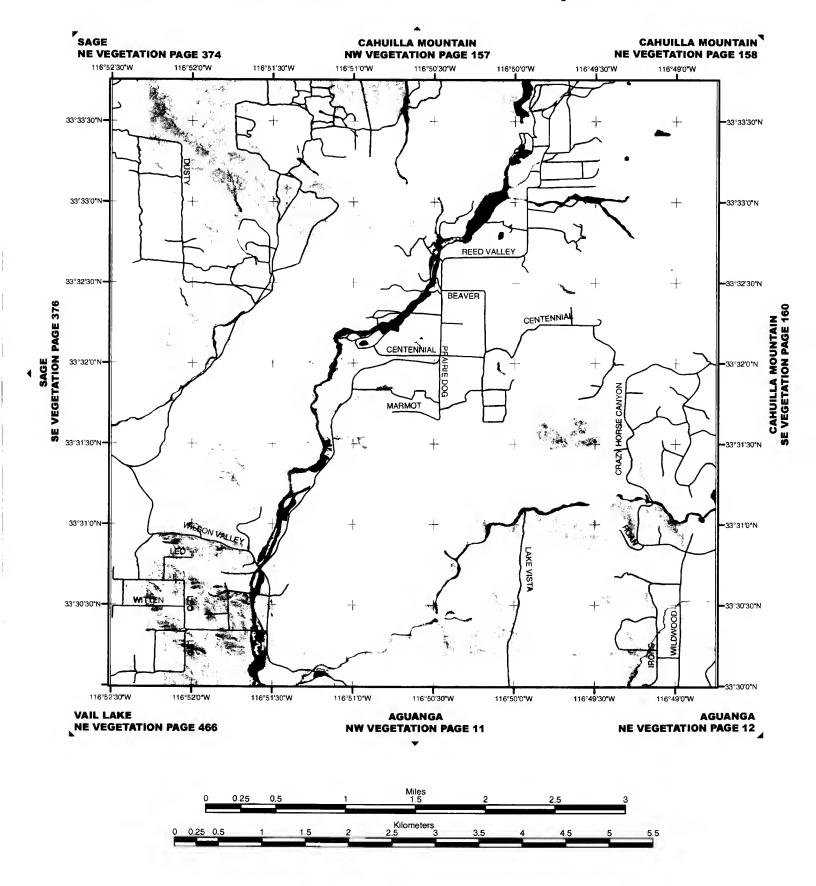
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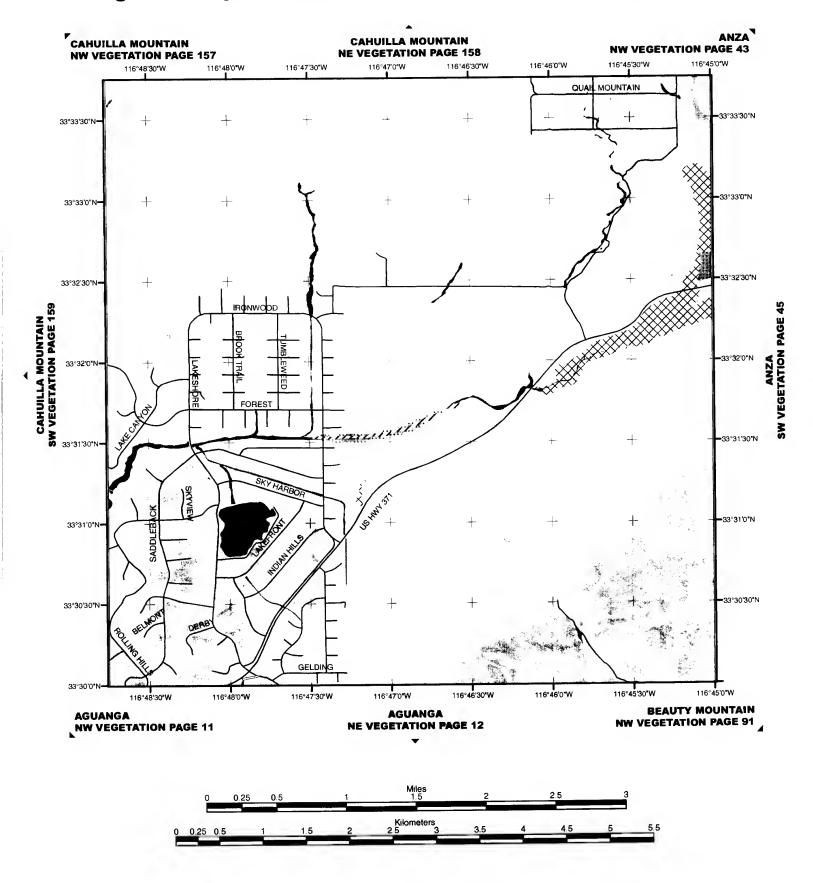
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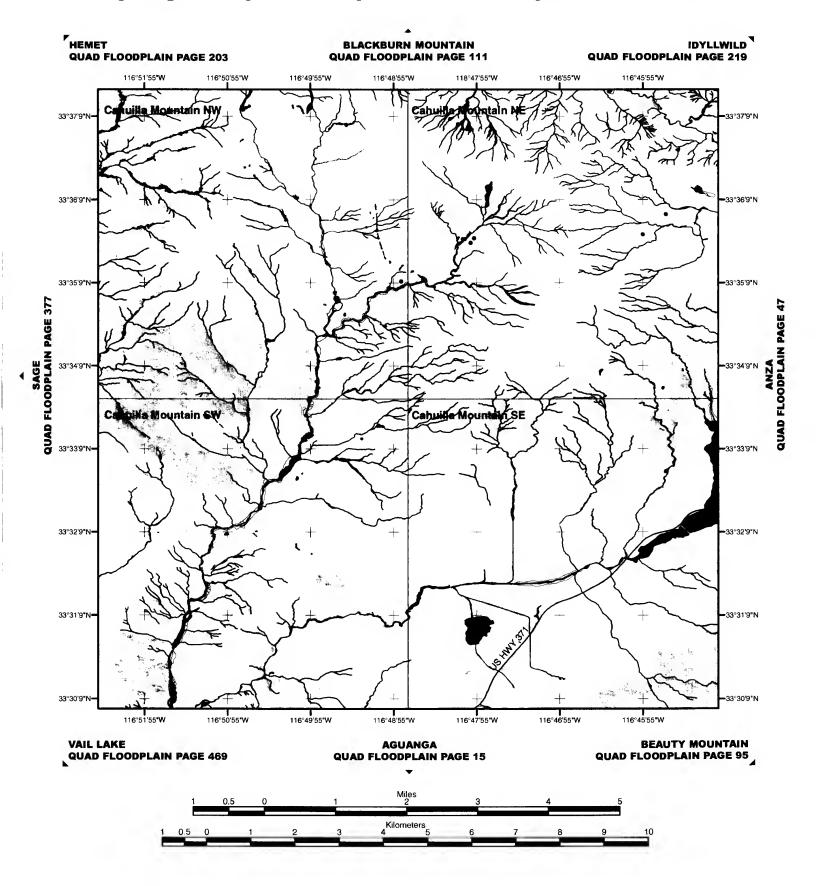
# Cahuilla Mountain South West Quarter-Quadrangle Vegetation Species Association Units for Aquatic Resources



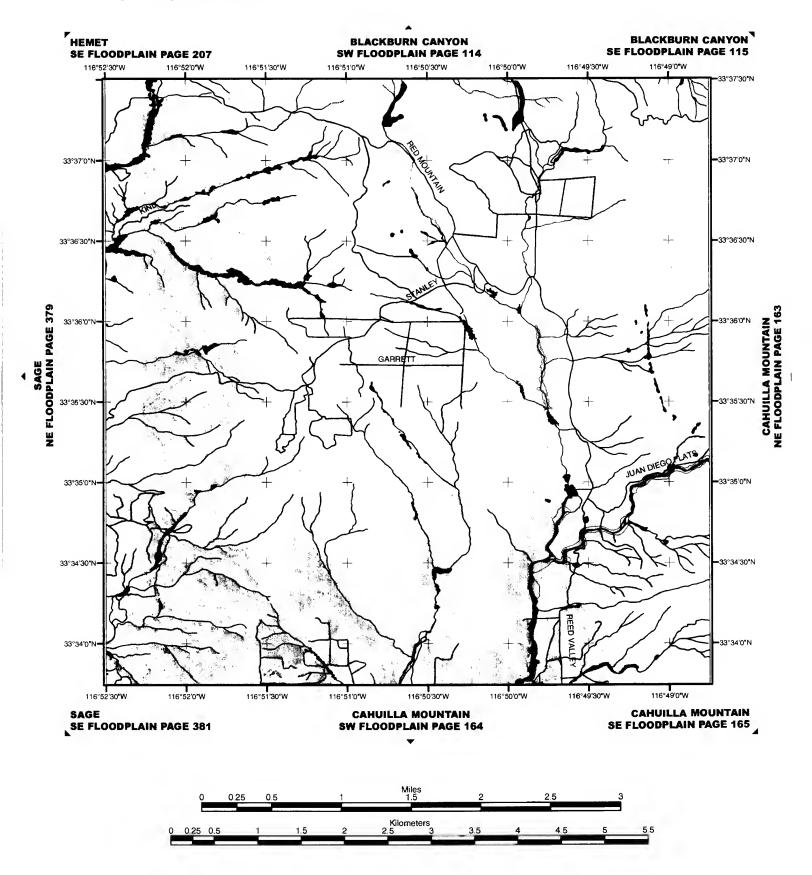
# Cahuilla Mountain South East Quarter-Quadrangle Vegetation Species Association Units for Aquatic Resources



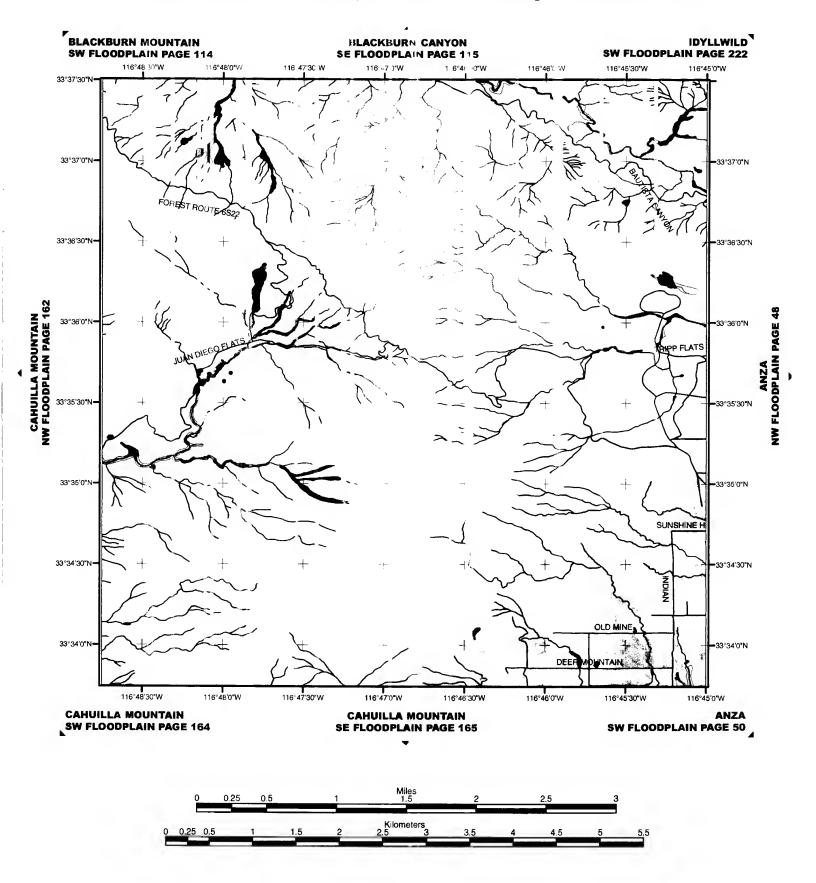
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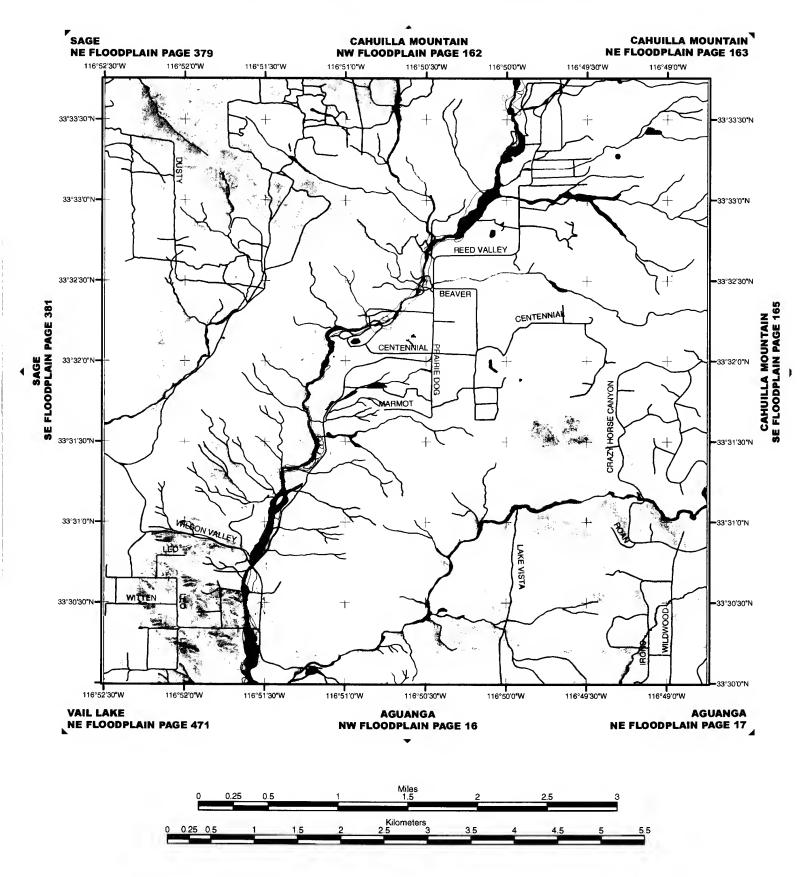
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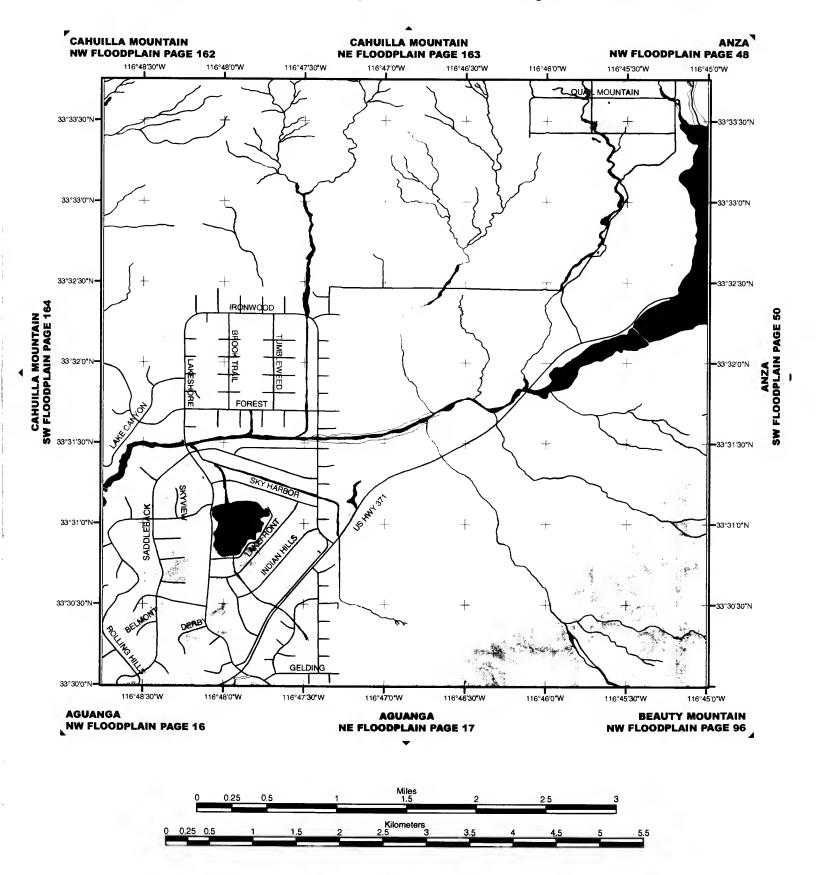
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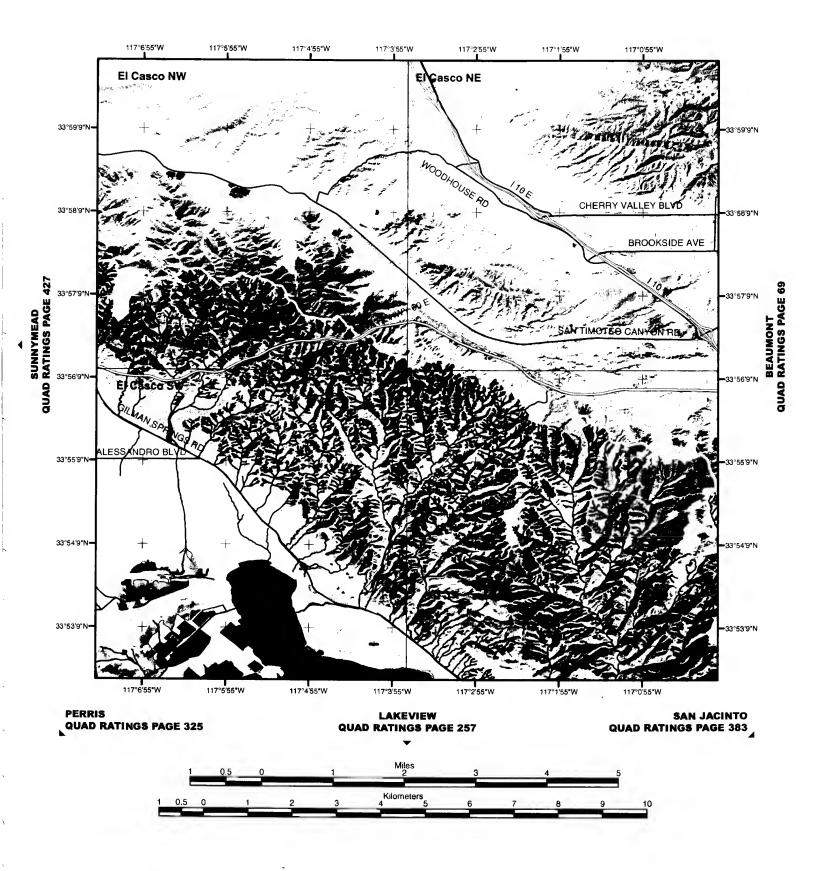
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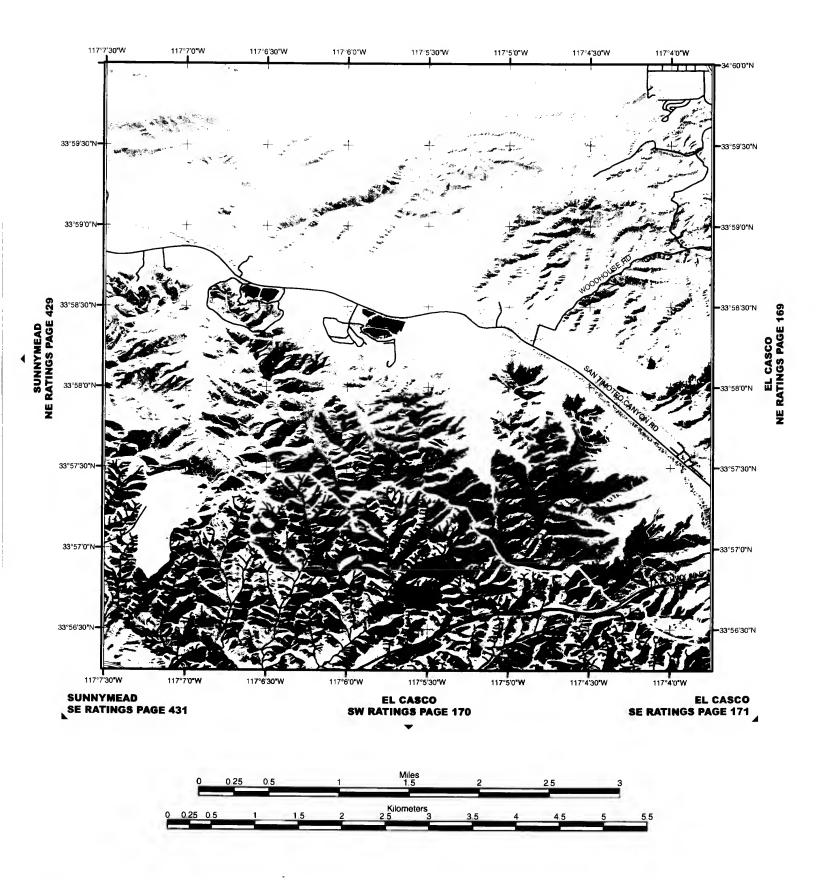
### Cahuilla Mountain South East Quarter-Quadrangle Hydrogeomorphic Floodplain Units for Aquatic Resources



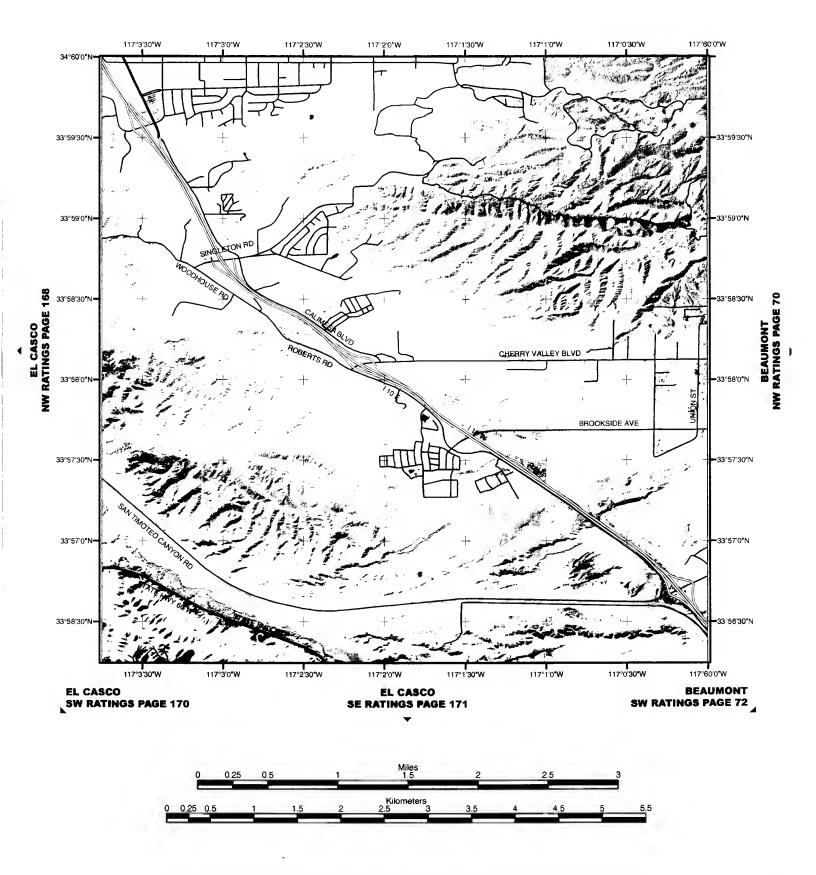
### El Casco Quadrangle Regulatory Probability Ratings for Aquatic Resources



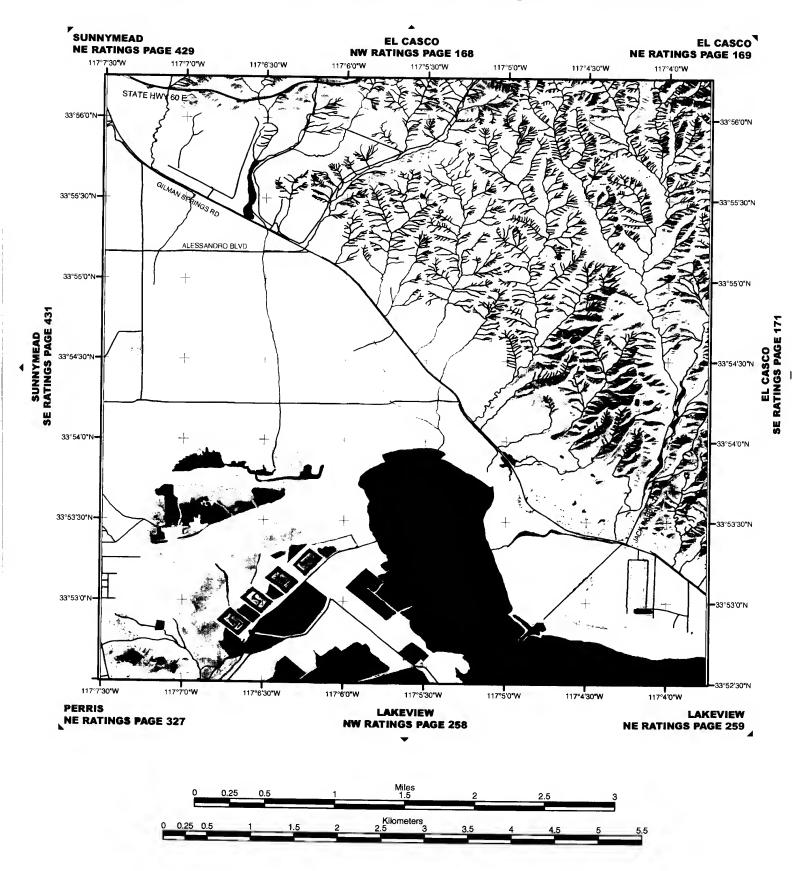
### El Casco North West Quarter-Quadrangle Regulatory Probability Ratings for Aquatic Resources



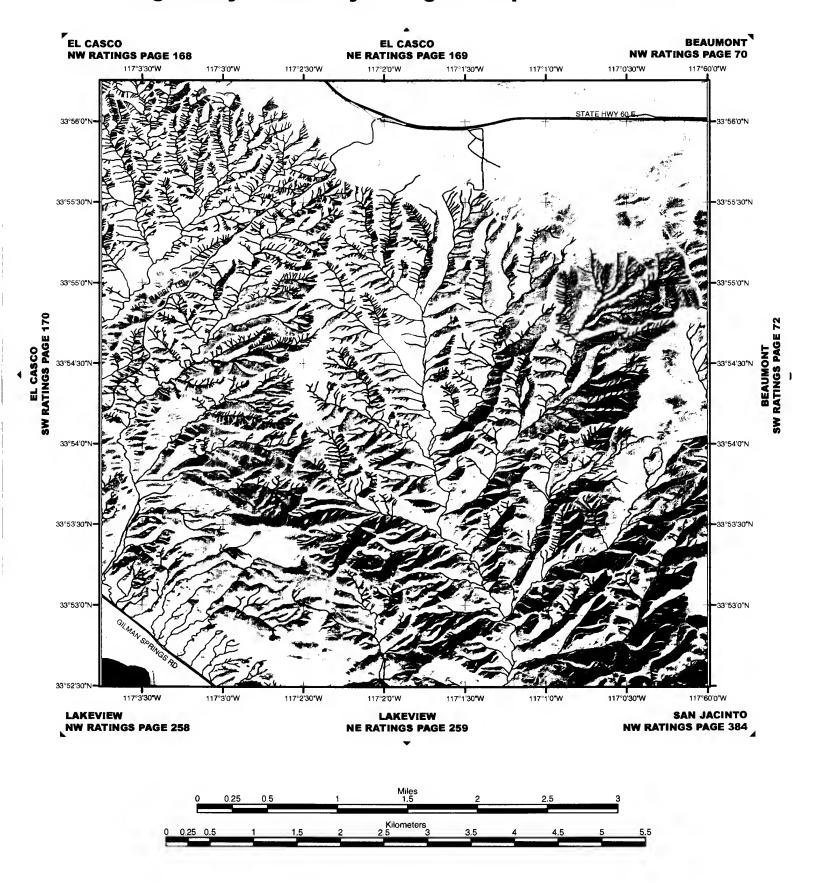
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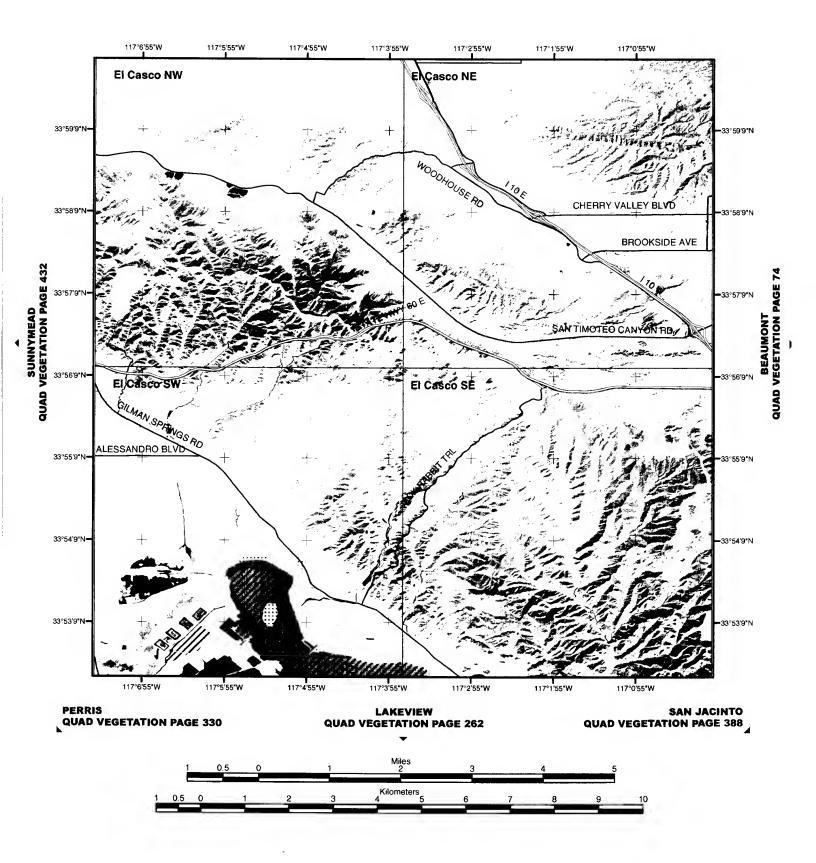
### El Casco South West Quarter-Quadrangle Regulatory Probability Ratings for Aquatic Resources



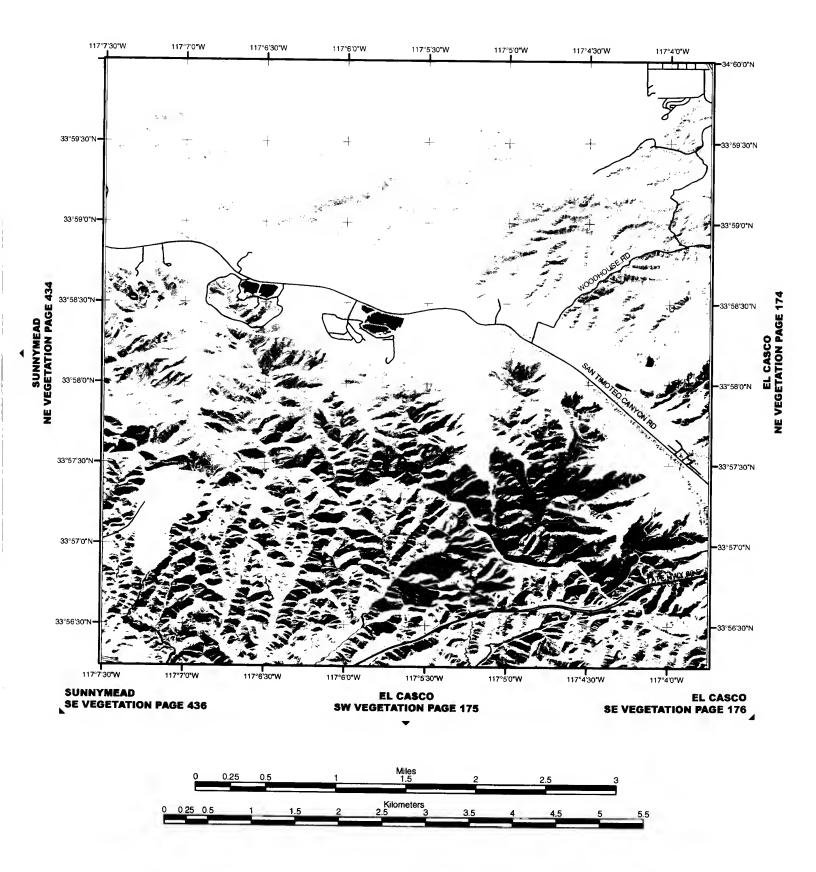
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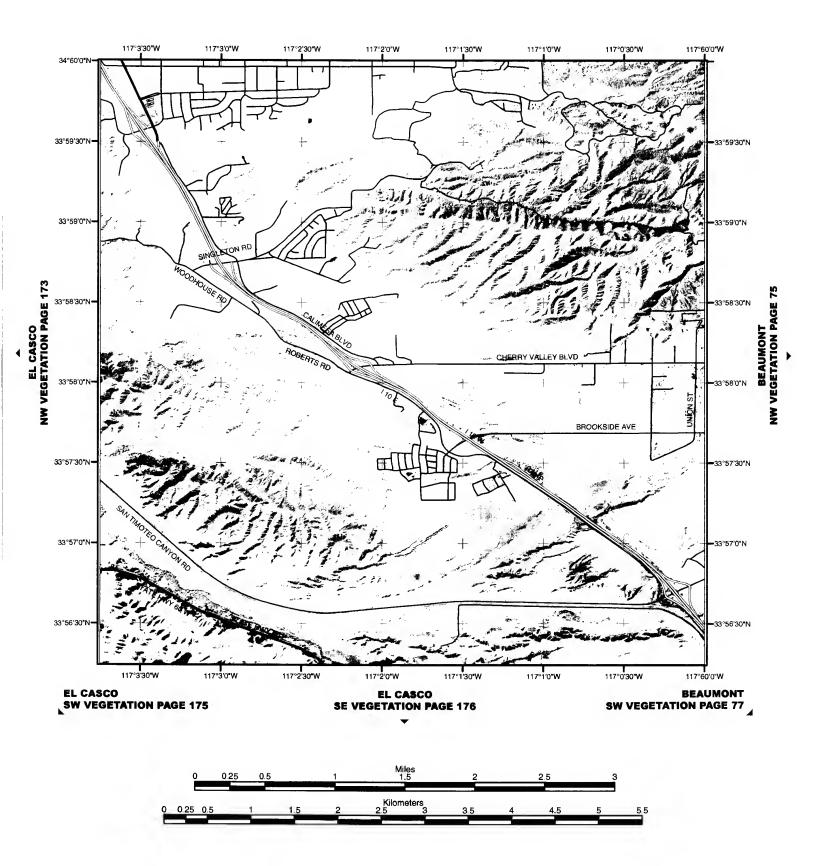
### El Casco Quadrangle Vegetation Species Association Units for Aquatic Resources



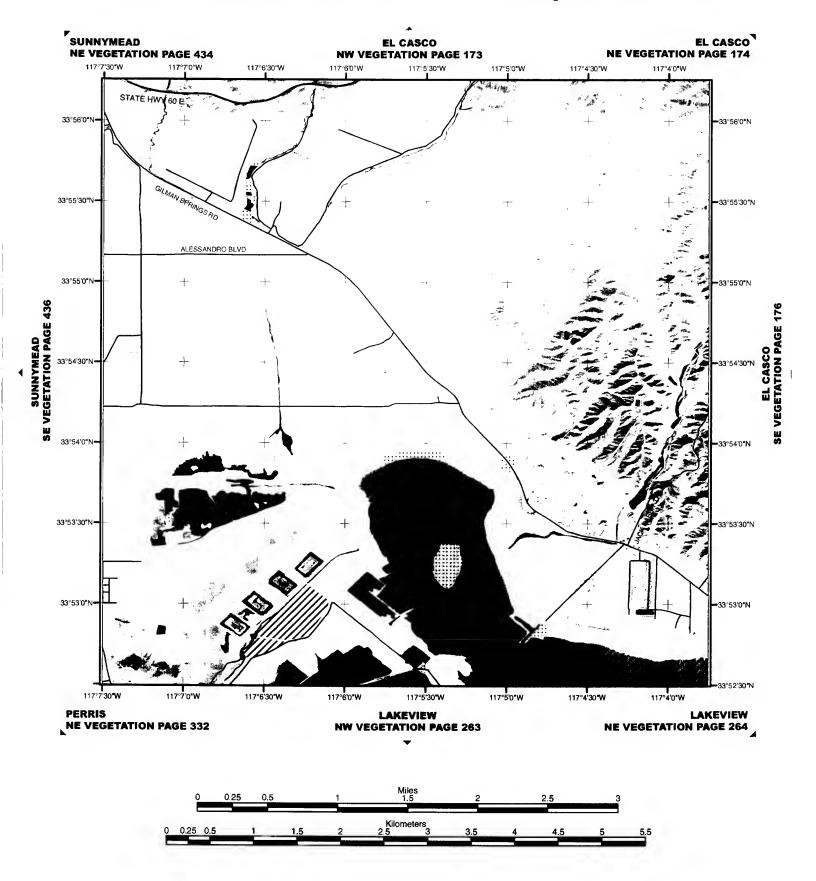
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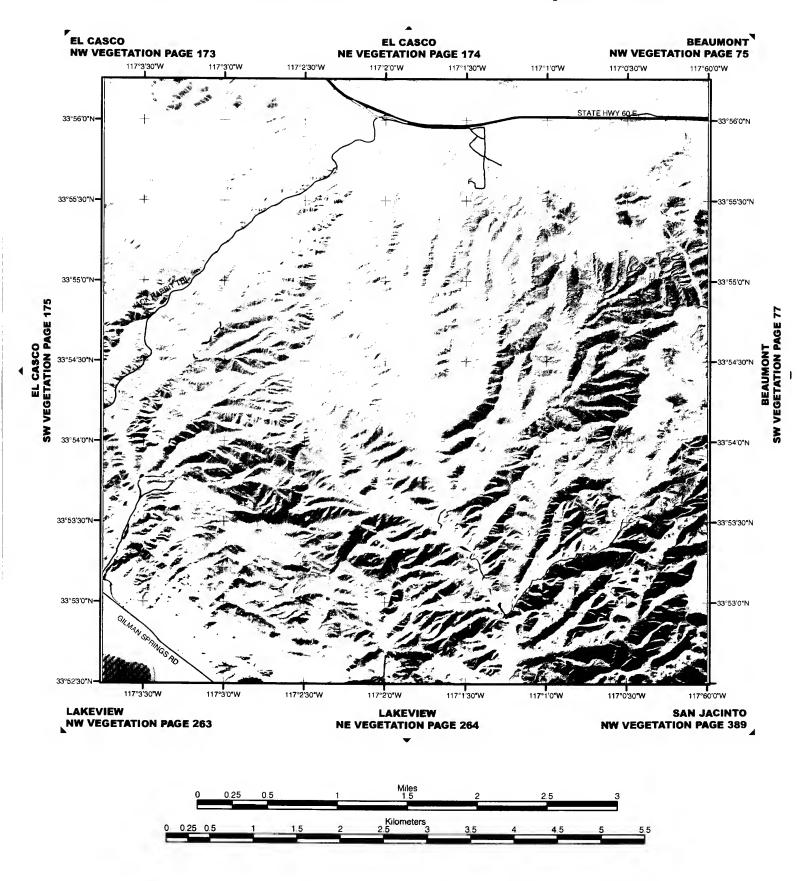
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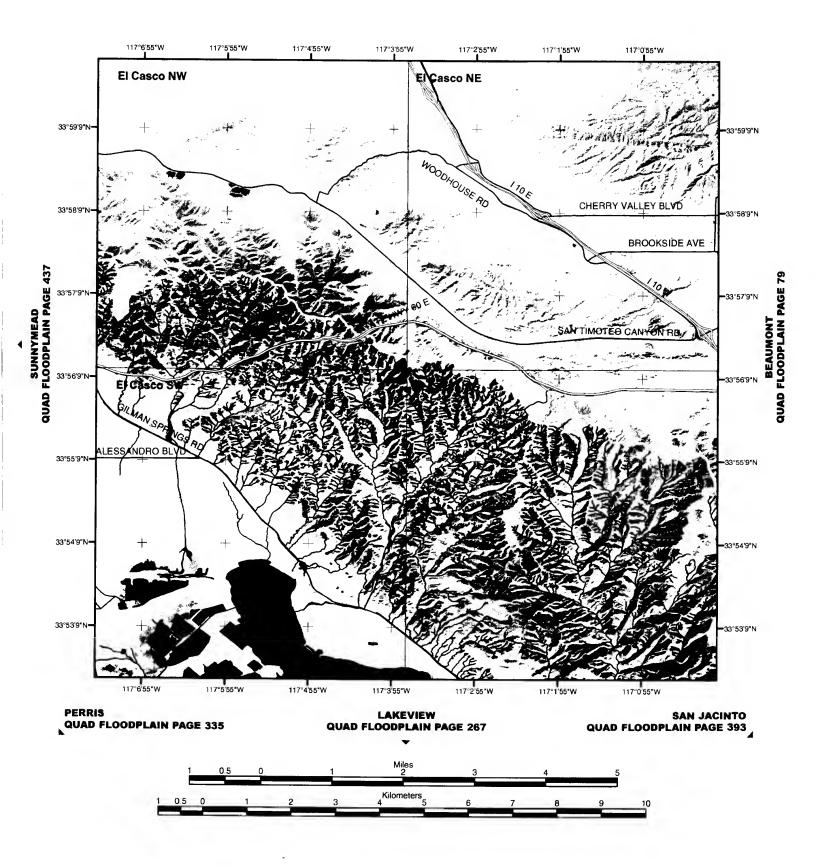
# El Casco South West Quarter-Quadrangle Vegetation Species Association Units for Aquatic Resources



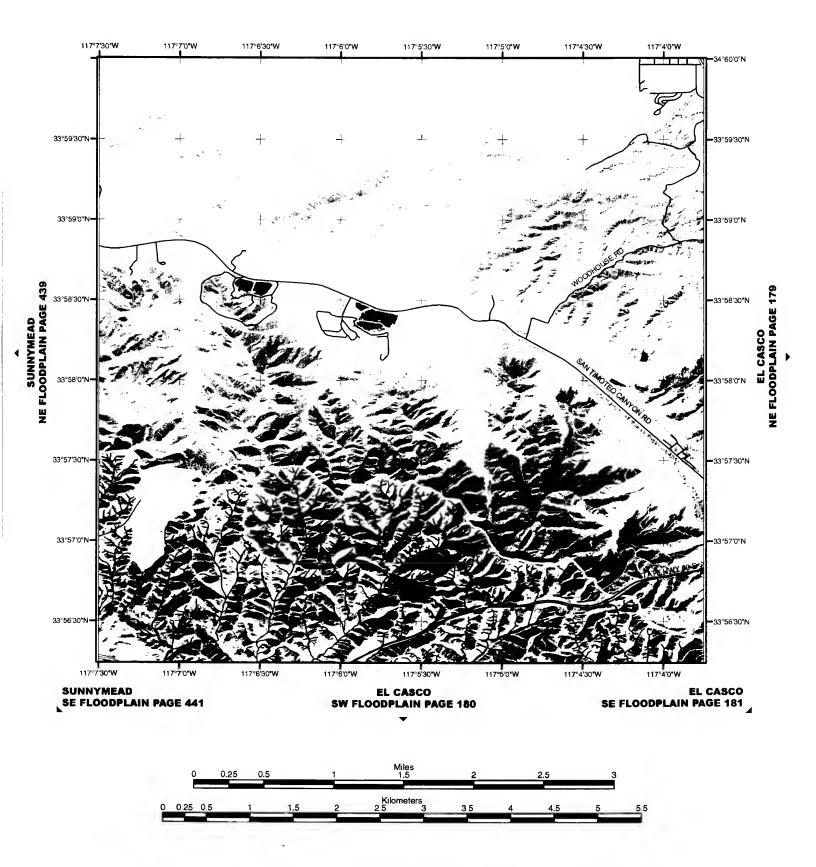
#### El Casco South East Quarter-Quadrangle Vegetation Species Association Units for Aquatic Resources



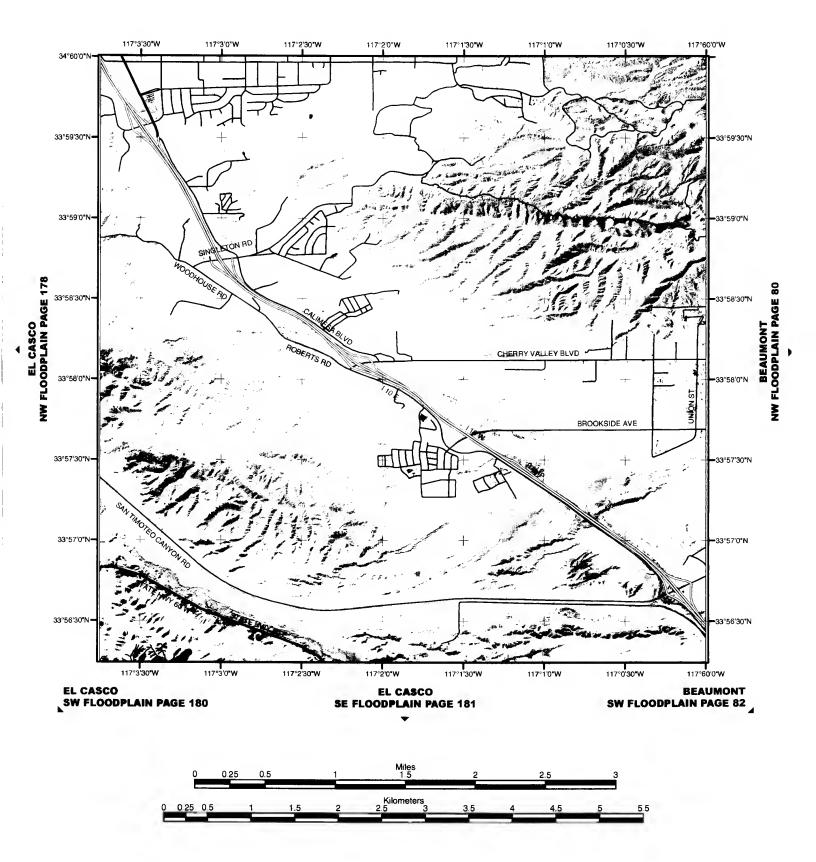
#### El Casco Quadrangle Hydrogeomorphic Floodplain Units for Aquatic Resources



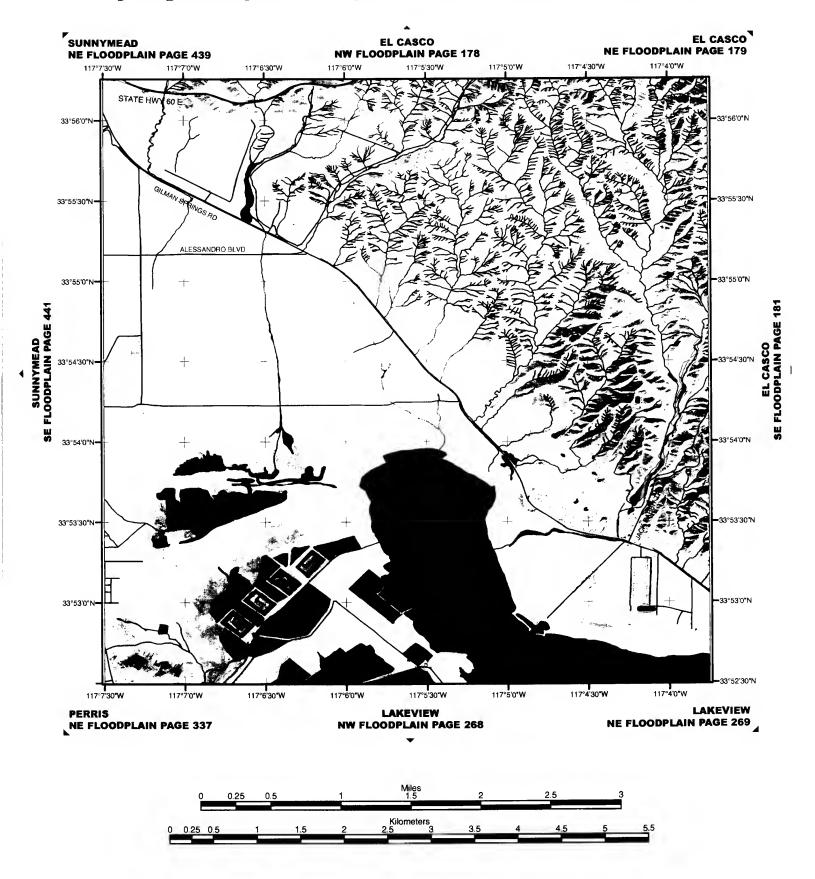
#### El Casco North West Quarter-Quadrangle Hydrogeomorphic Floodplain Units for Aquatic Resources



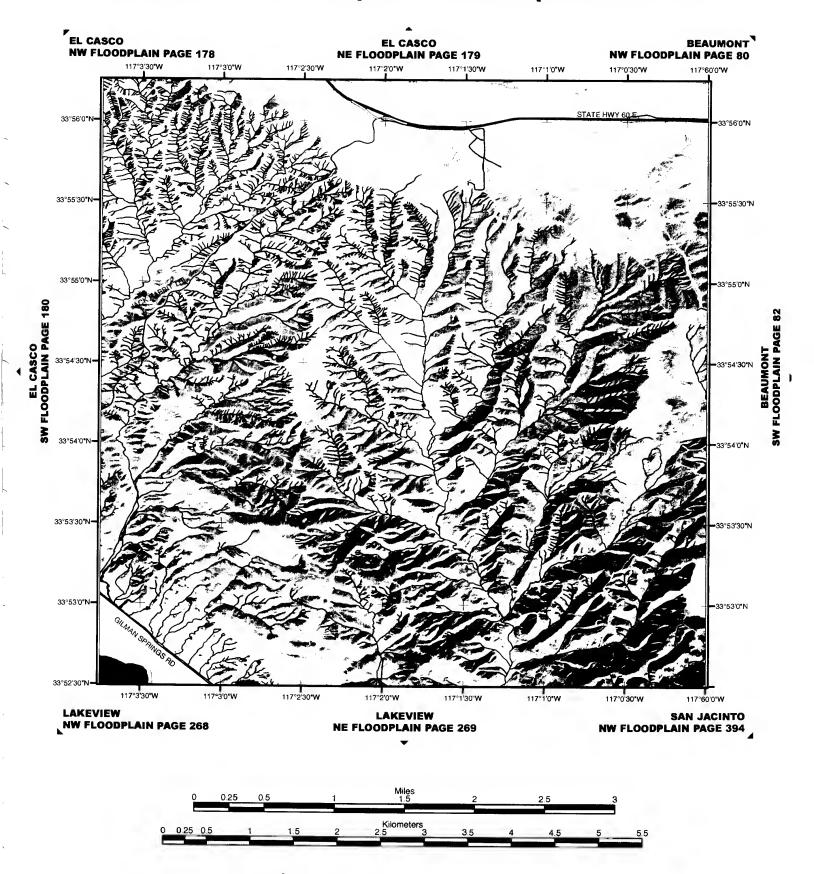
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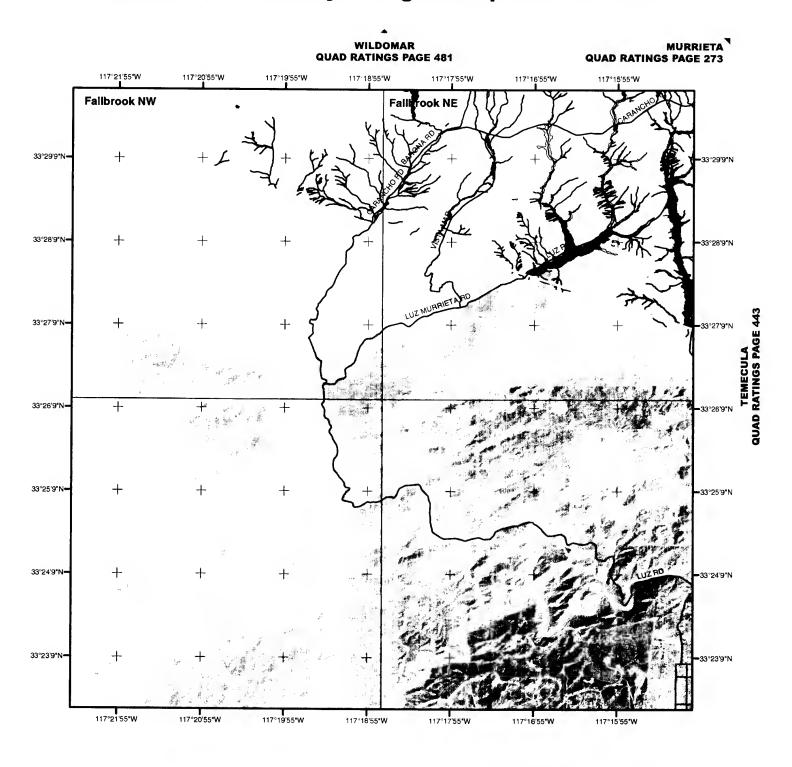
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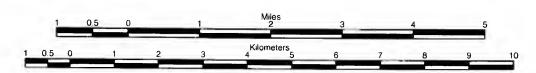


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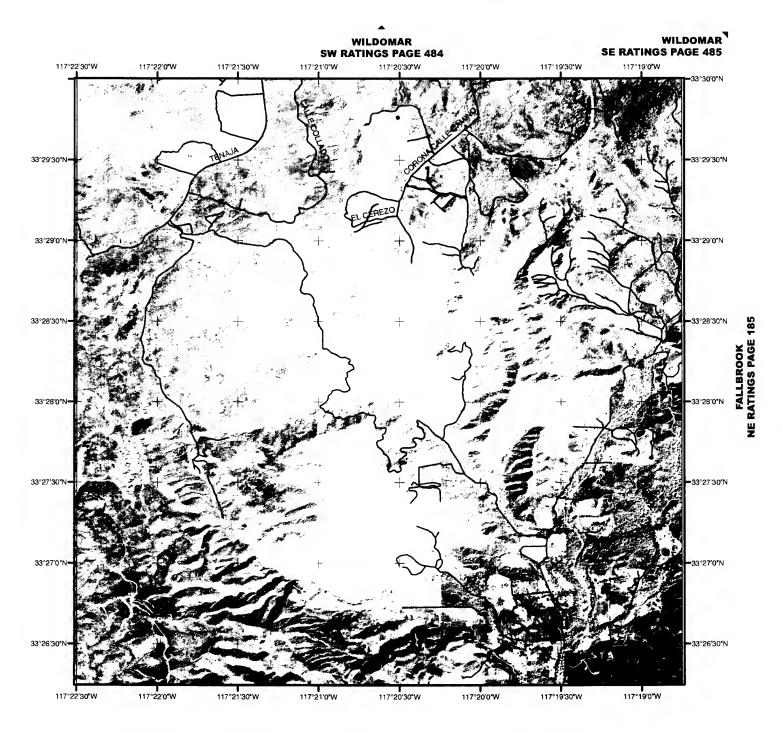


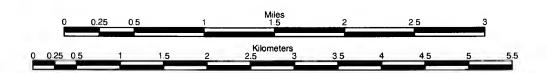
#### Fallbrook Quadrangle Regulatory Probability Ratings for Aquatic Resources



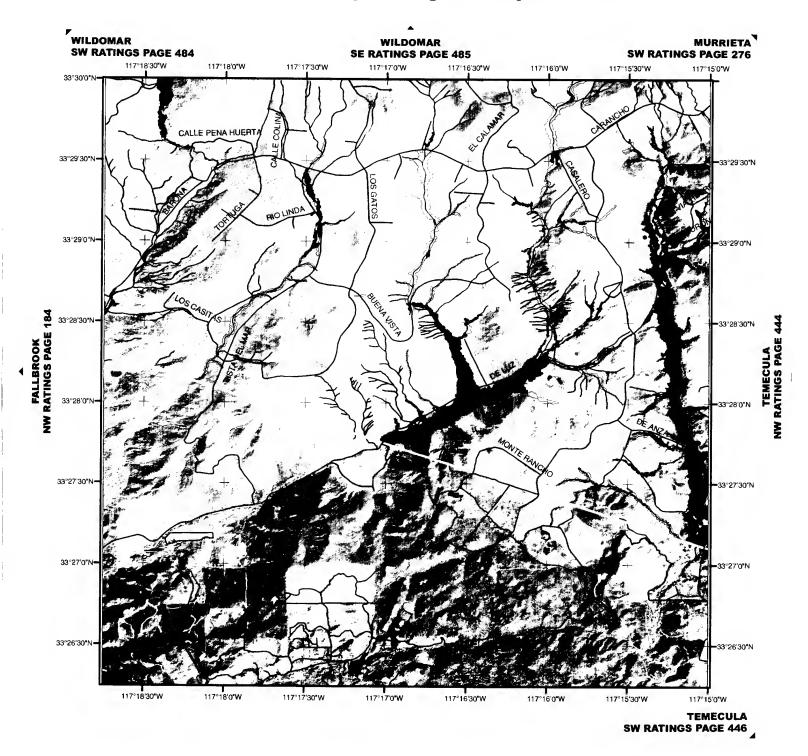


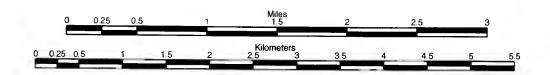
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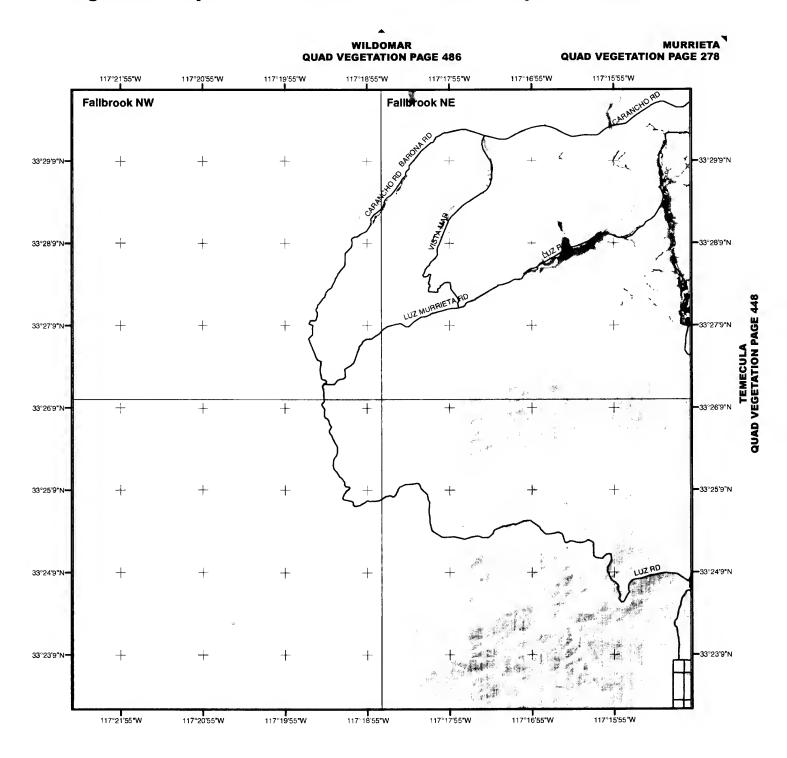


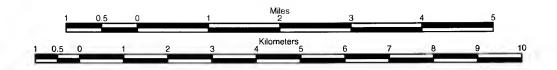
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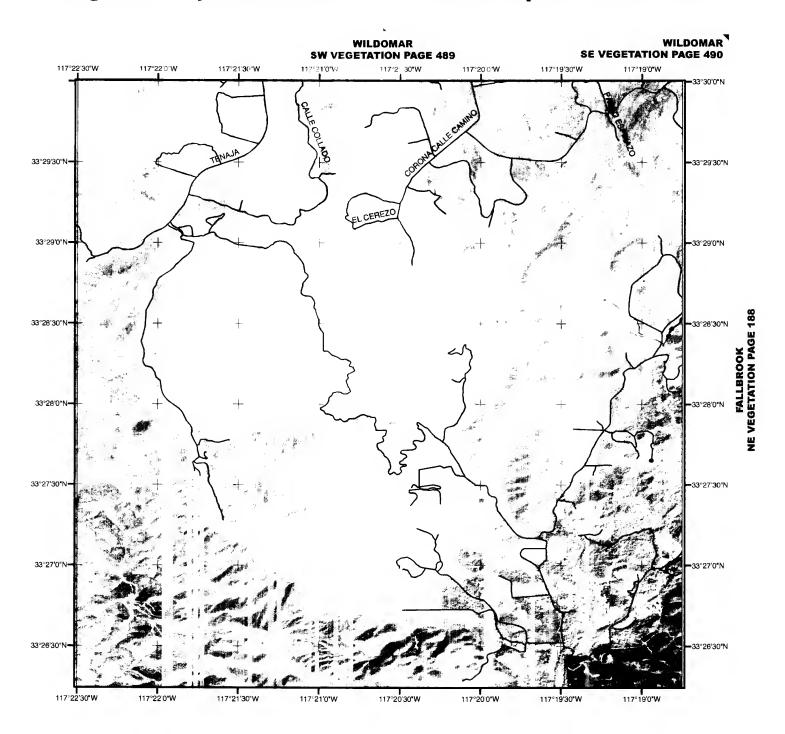


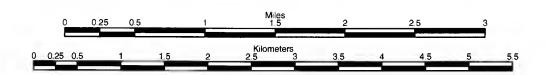
# Fallbrook Quadrangle Vegetation Species Association Units for Aquatic Resources



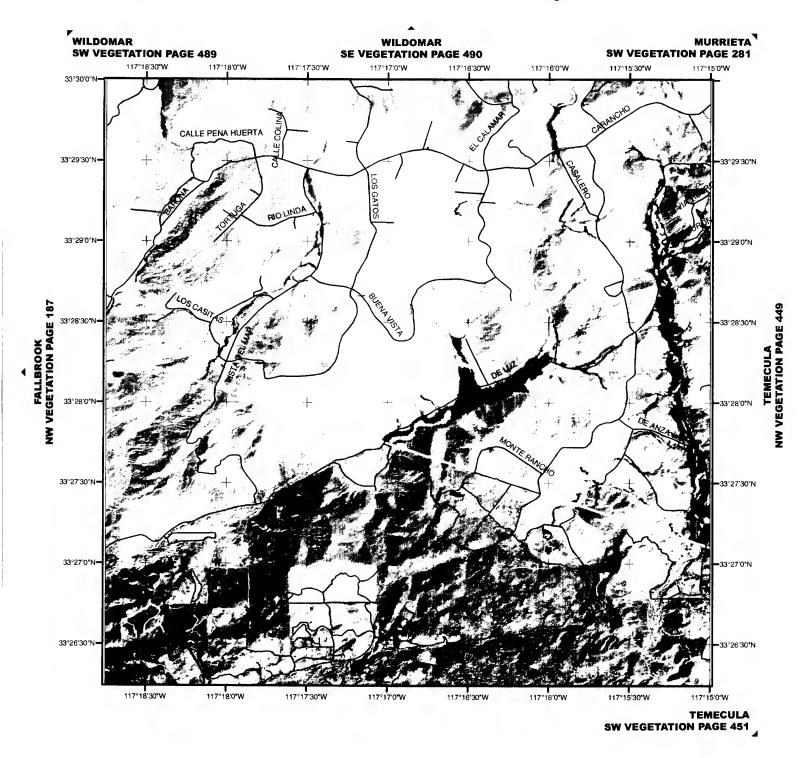


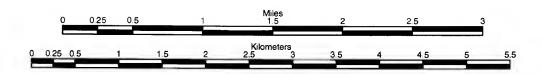
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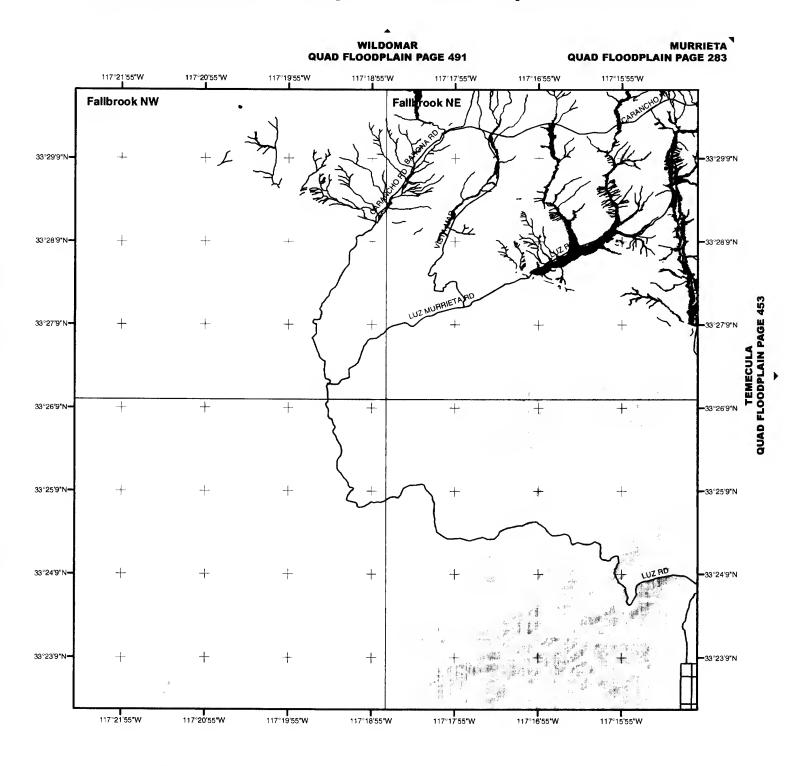


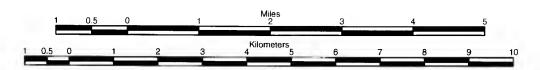
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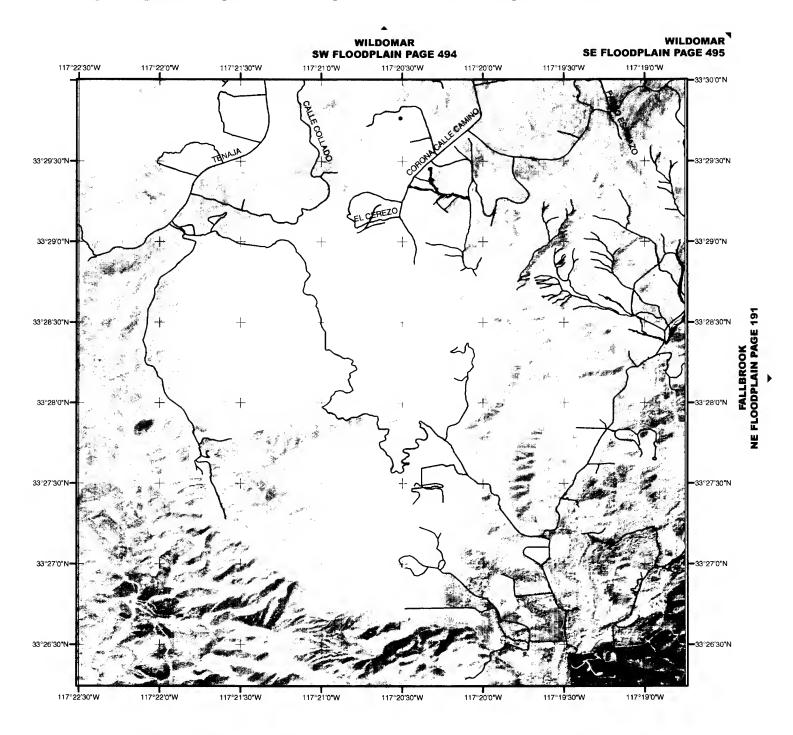


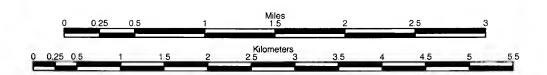
# Fallbrook Quadrangle Hydrogeomorphic Floodplain Units for Aquatic Resources



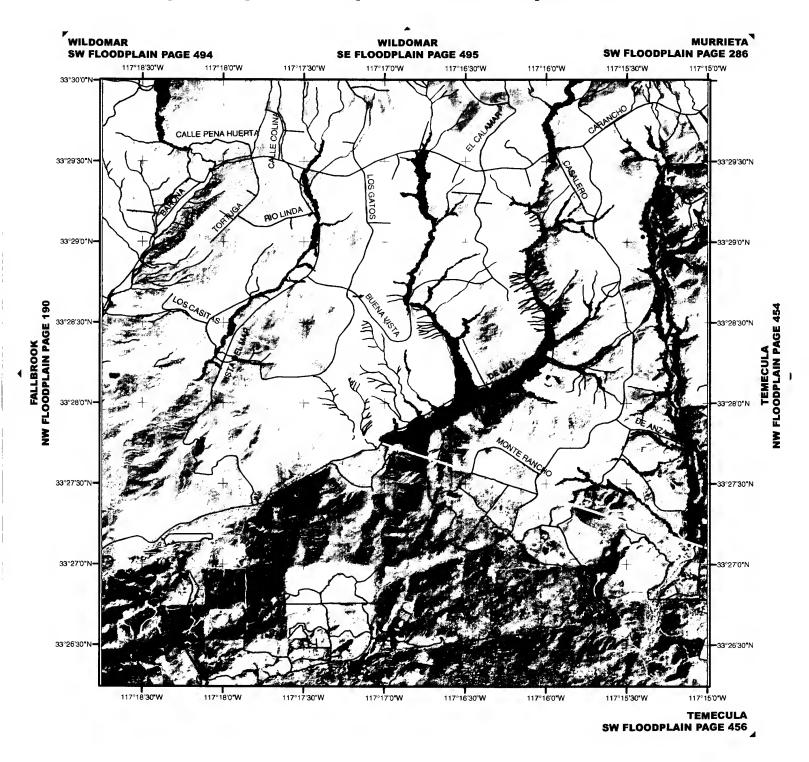


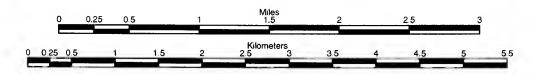
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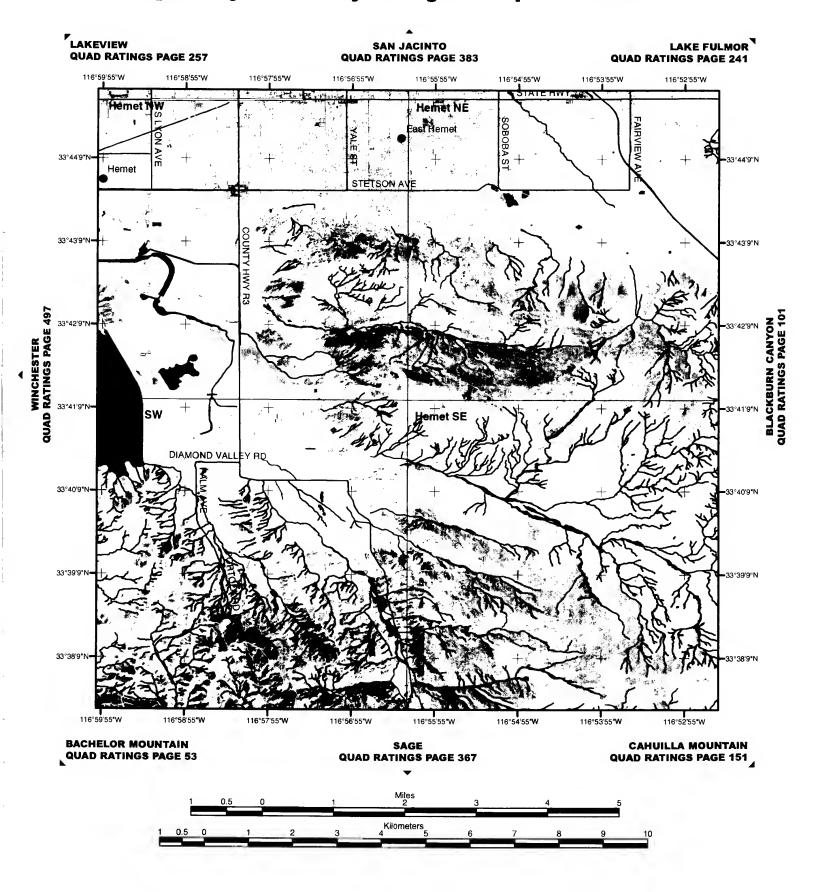


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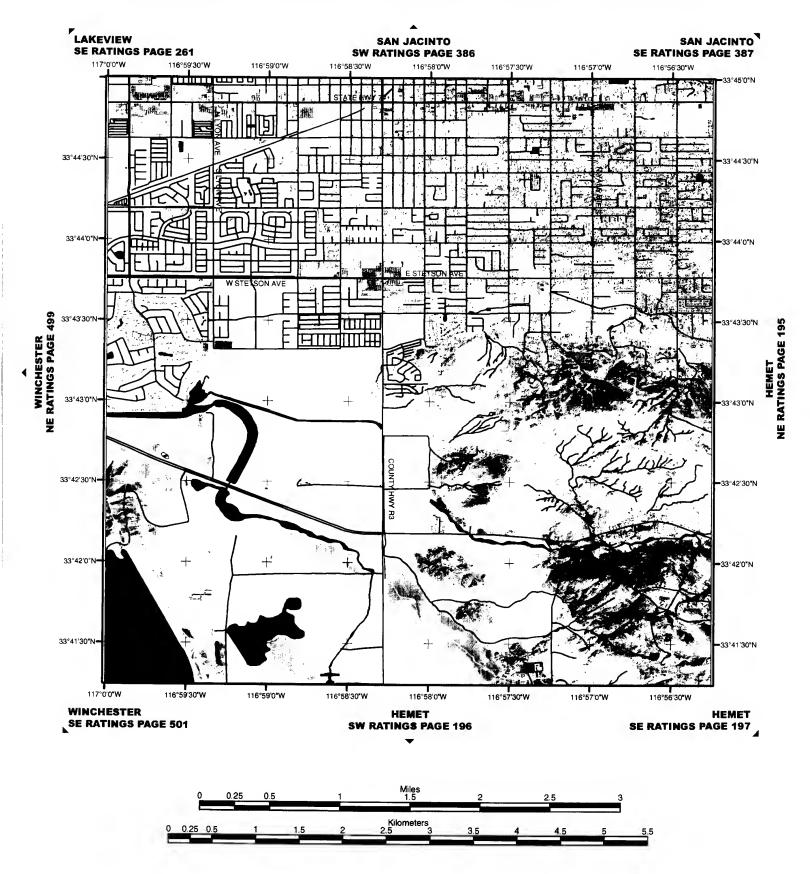




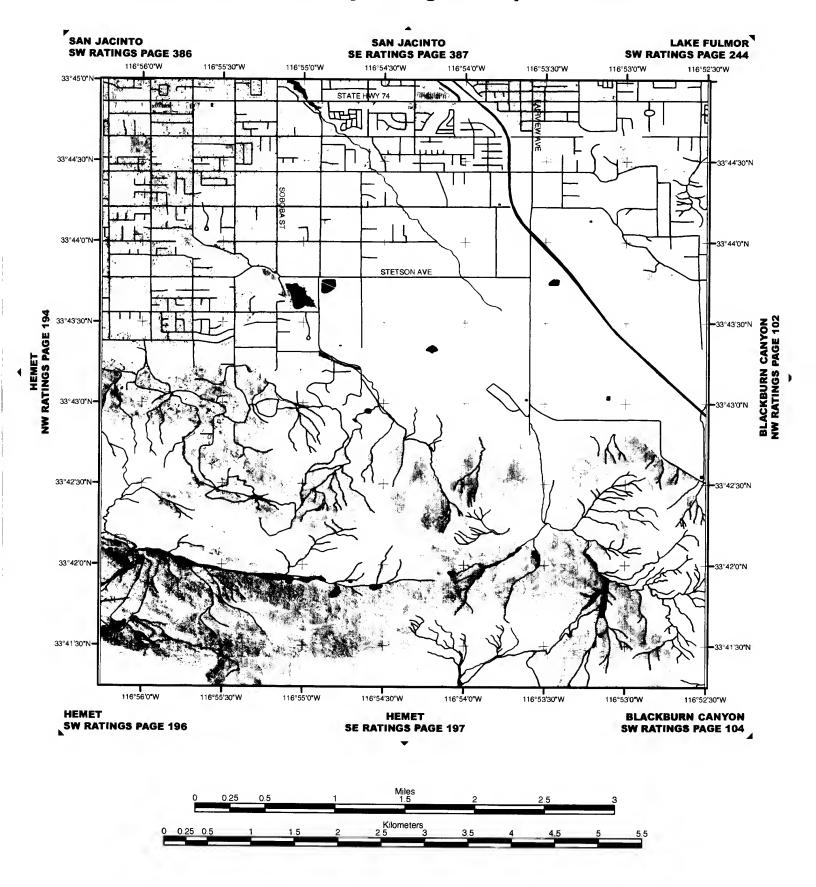
#### Hemet Quadrangle Regulatory Probability Ratings for Aquatic Resources



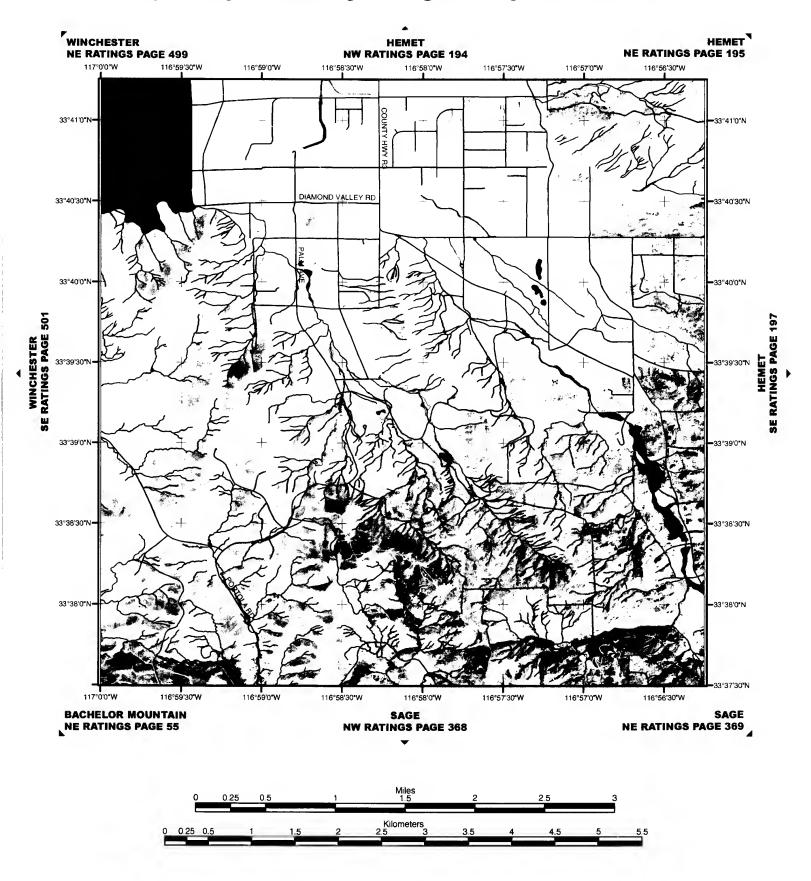
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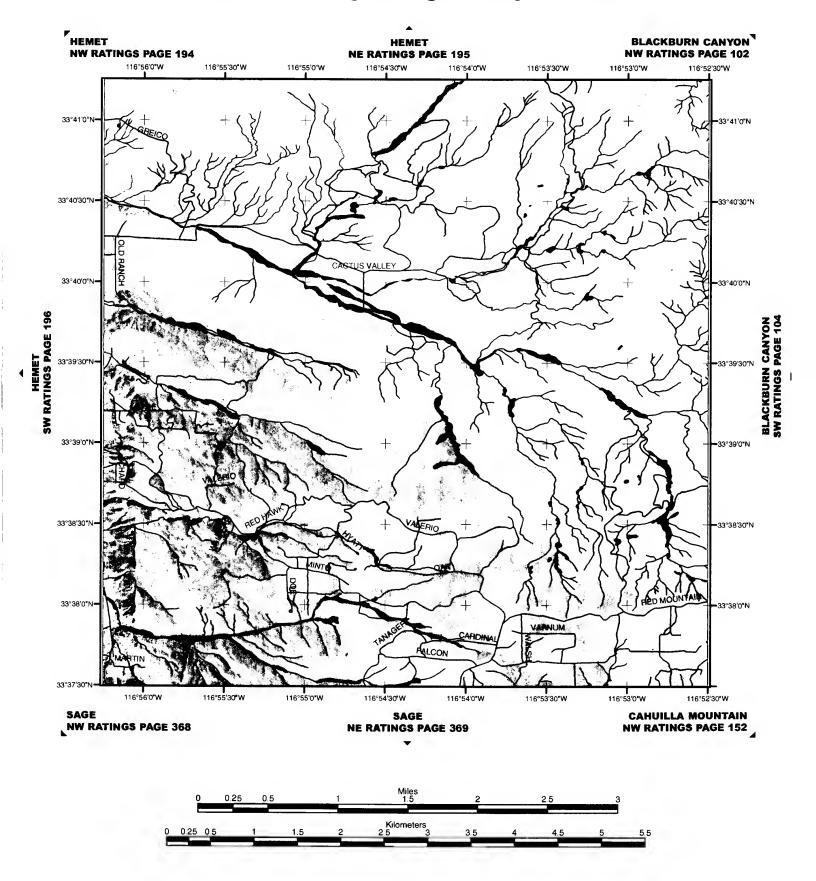
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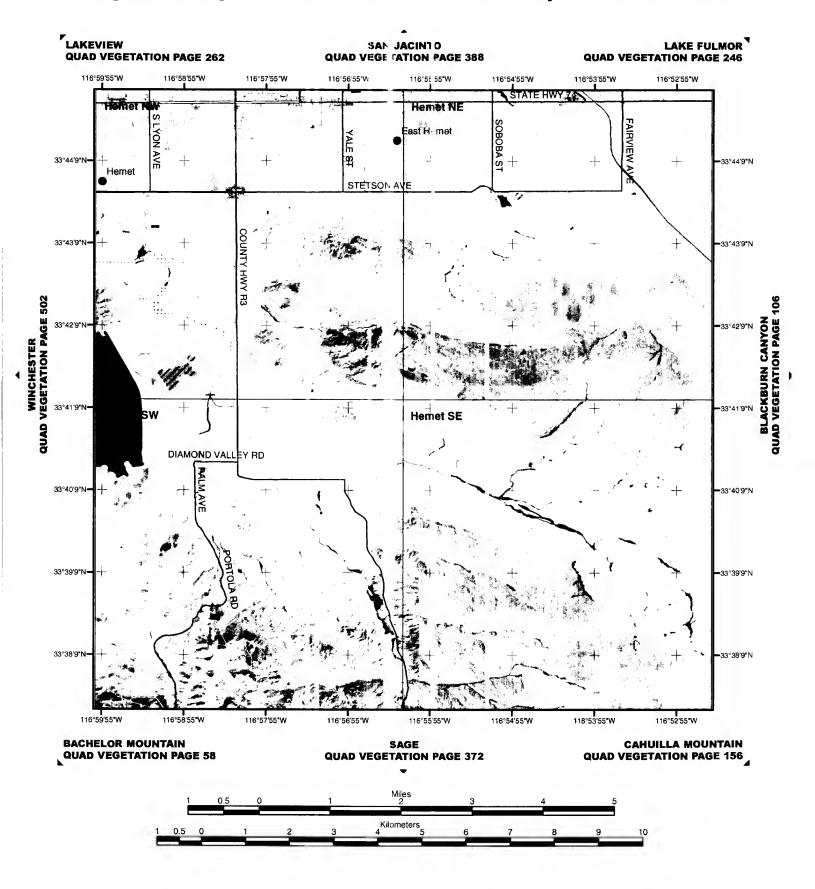
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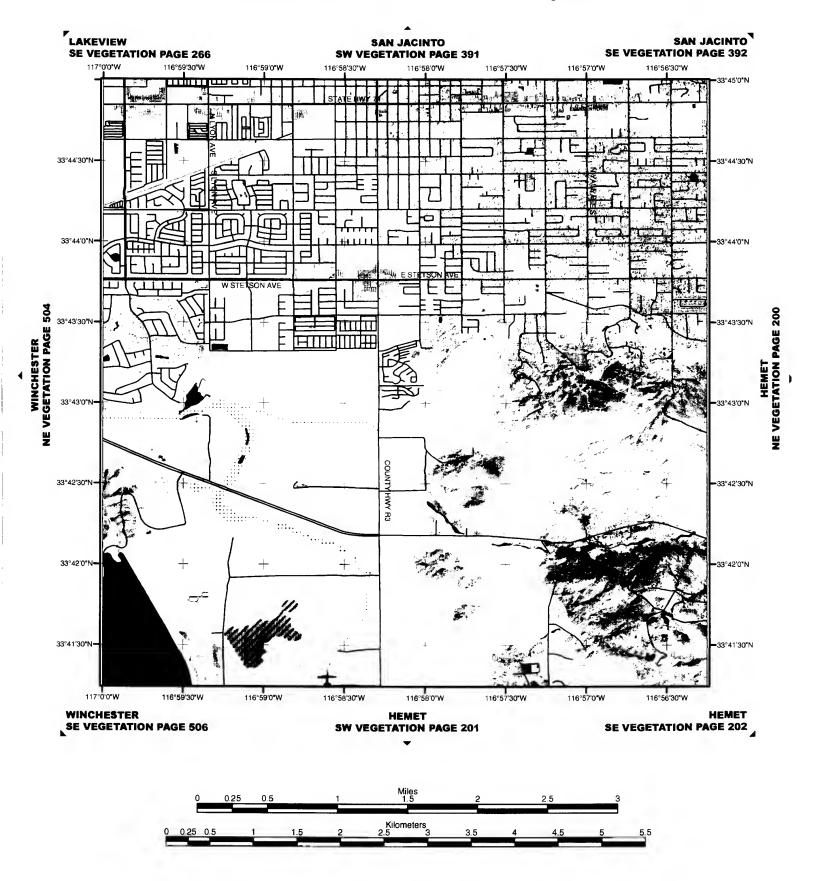
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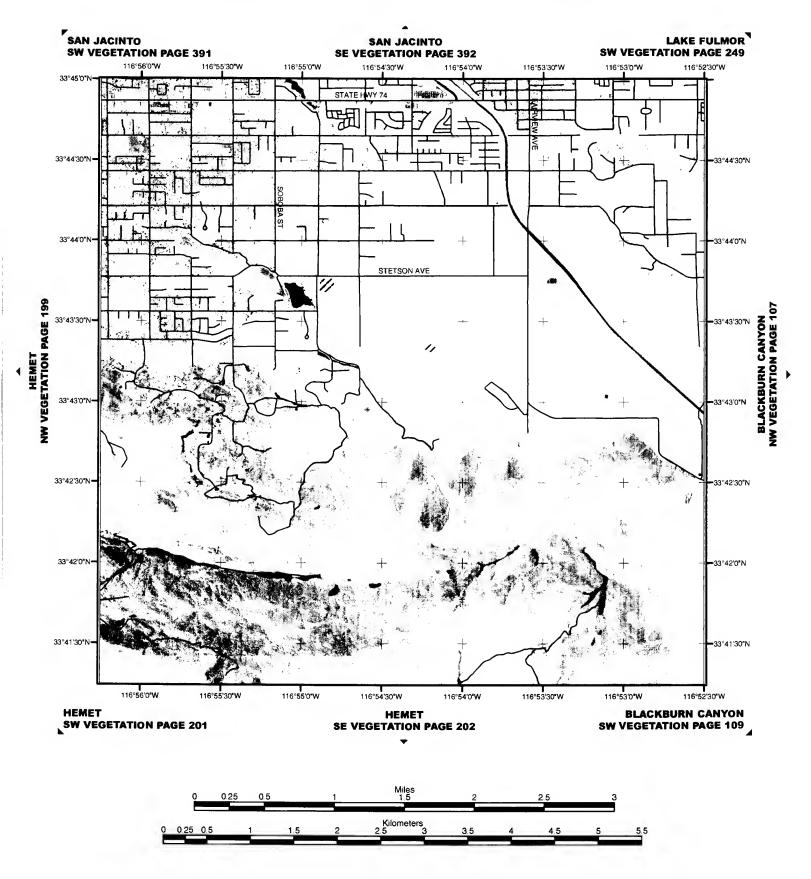
#### Hemet Quadrangle Vegetation Species Association Units for Aquatic Resources



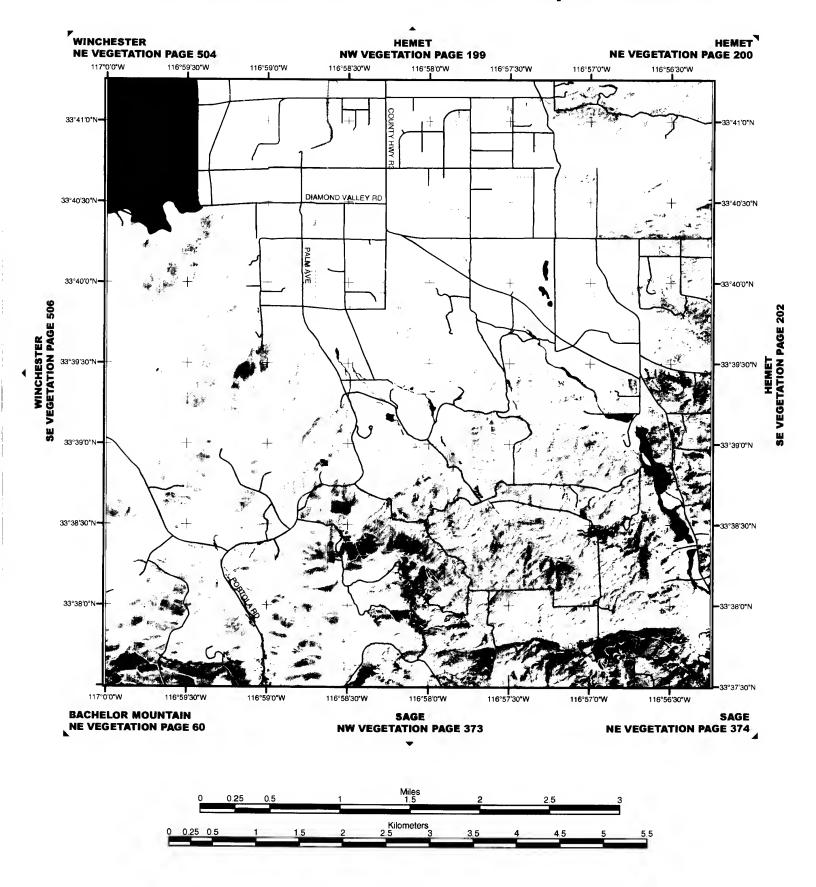
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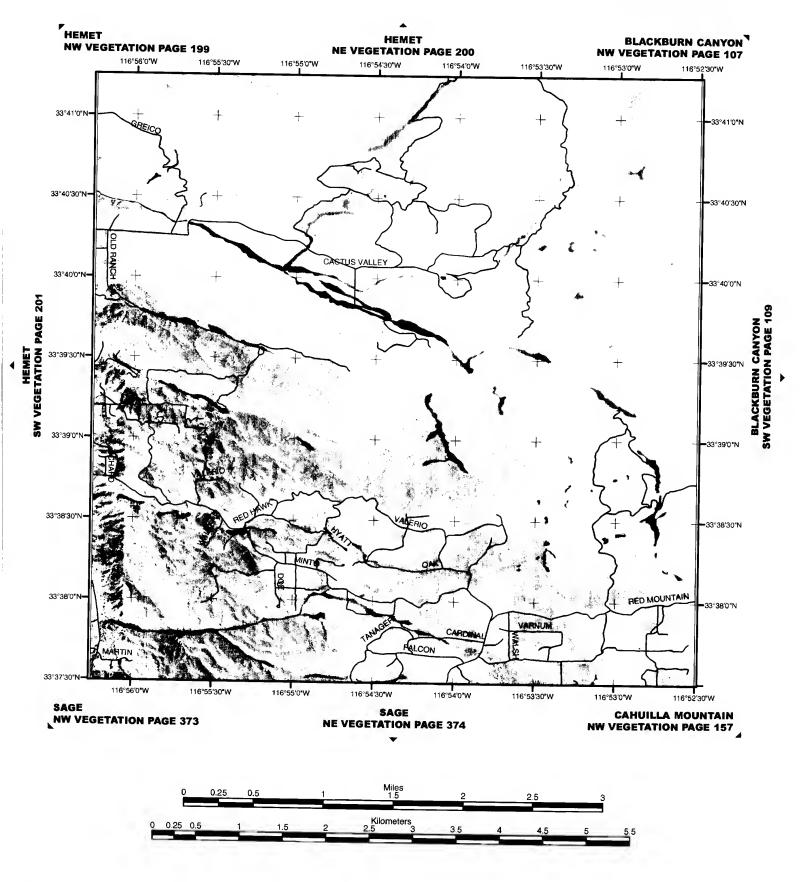
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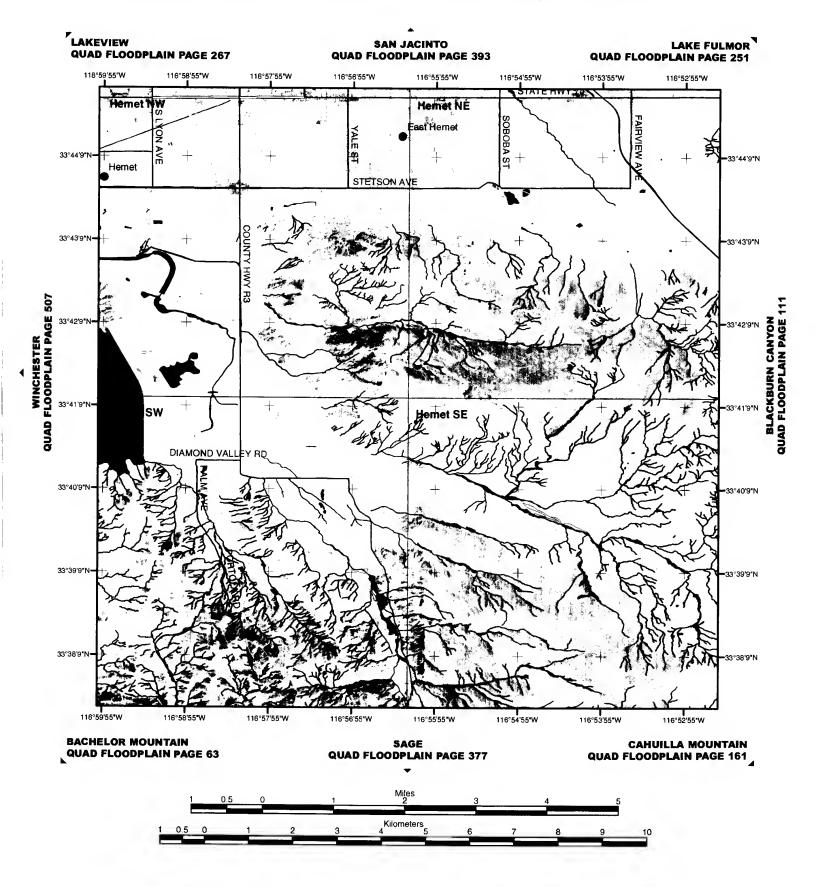
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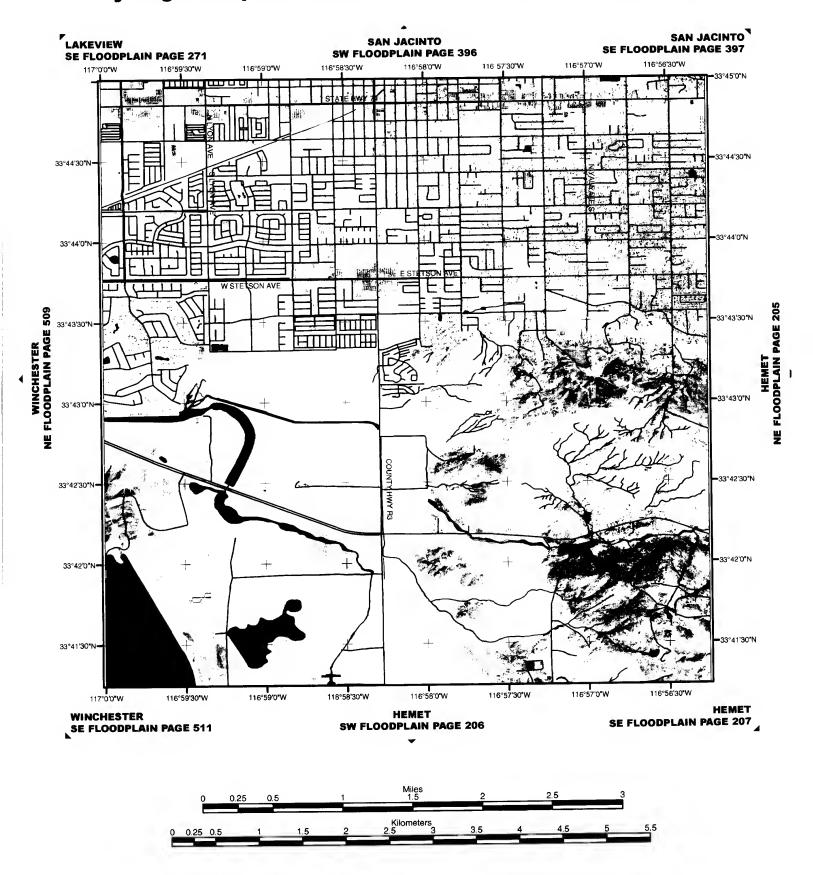
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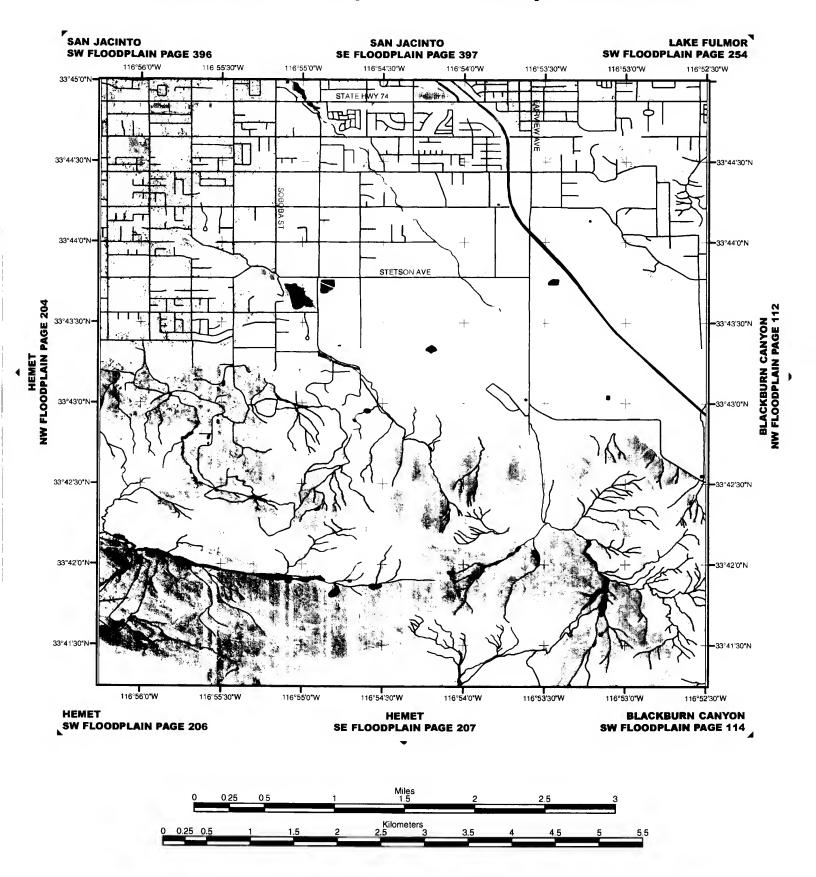
# Hemet Quadrangle Hydrogeomorphic Floodplain Units for Aquatic Resources



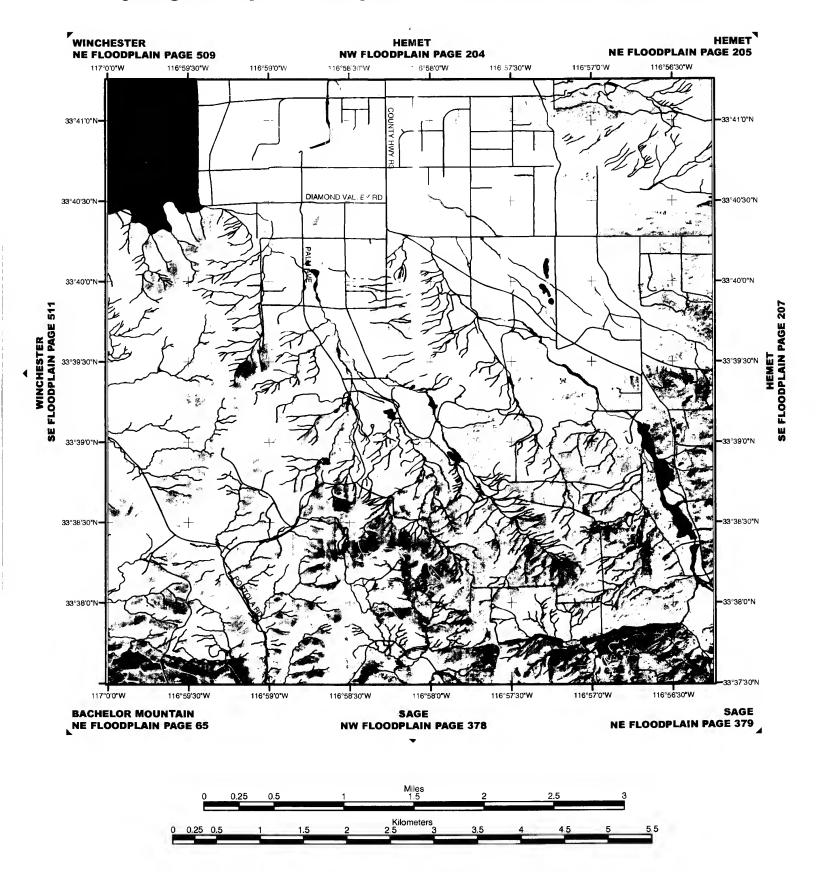
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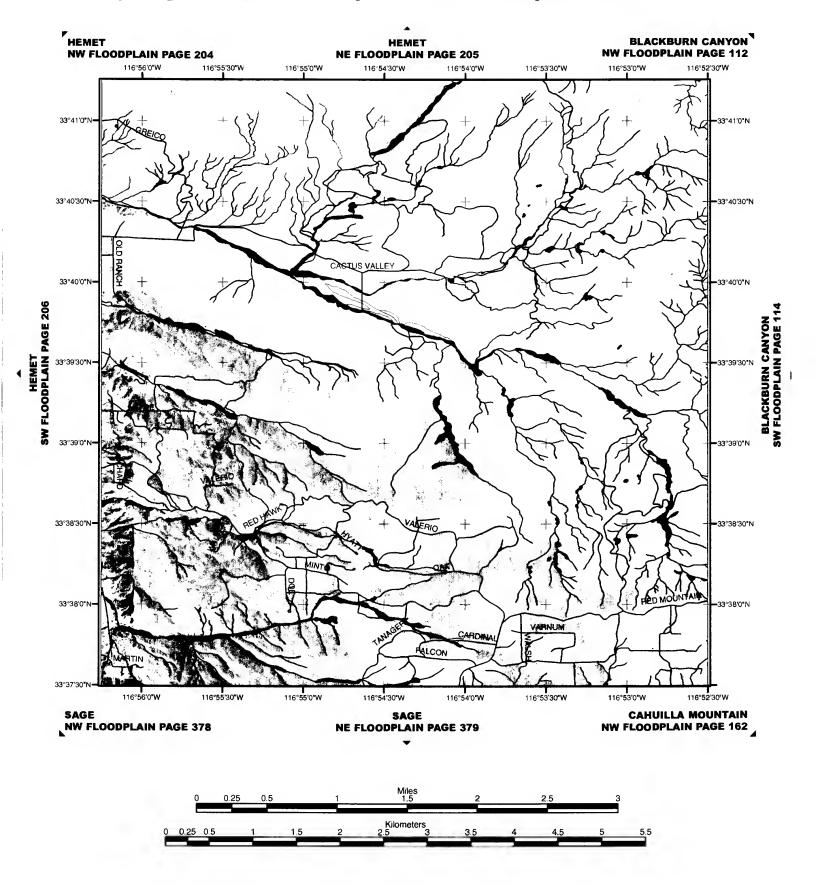
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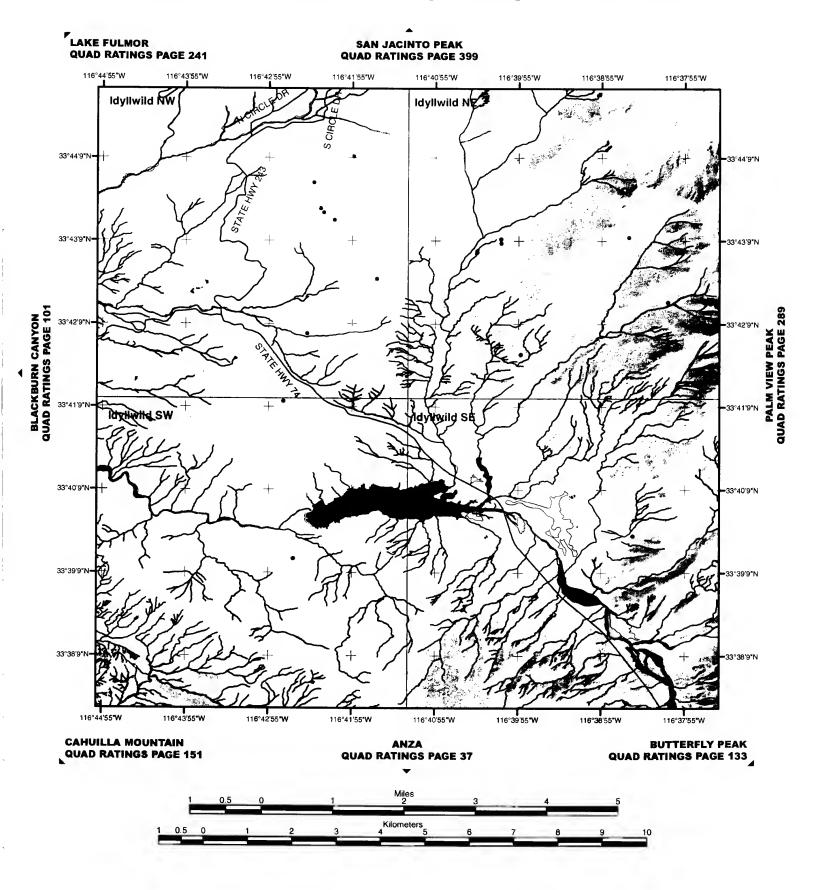
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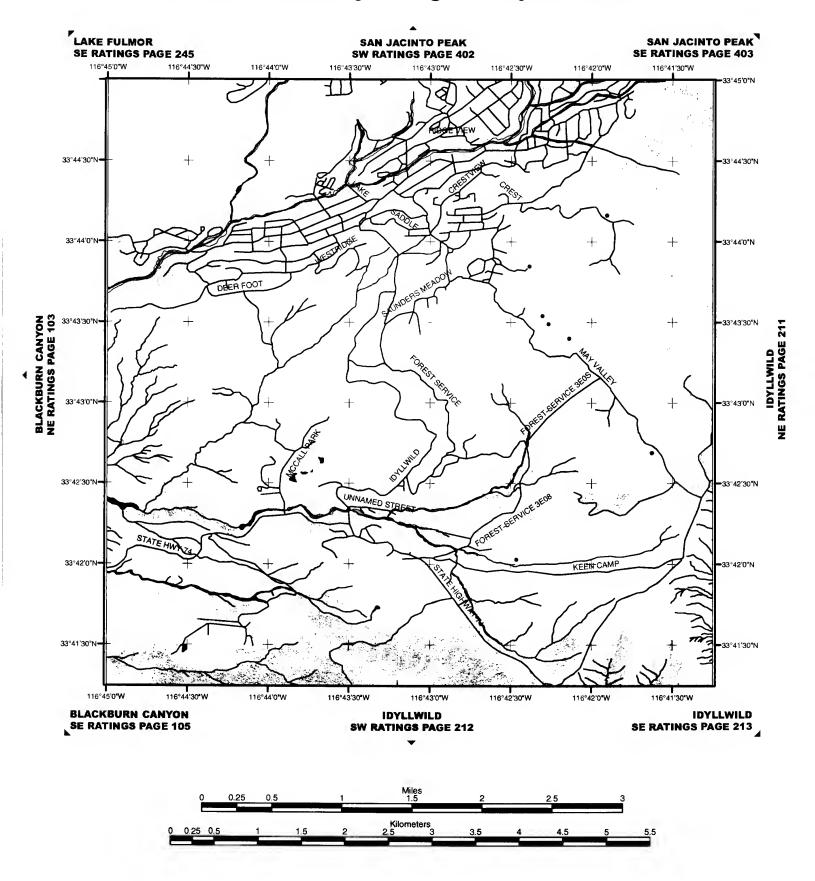
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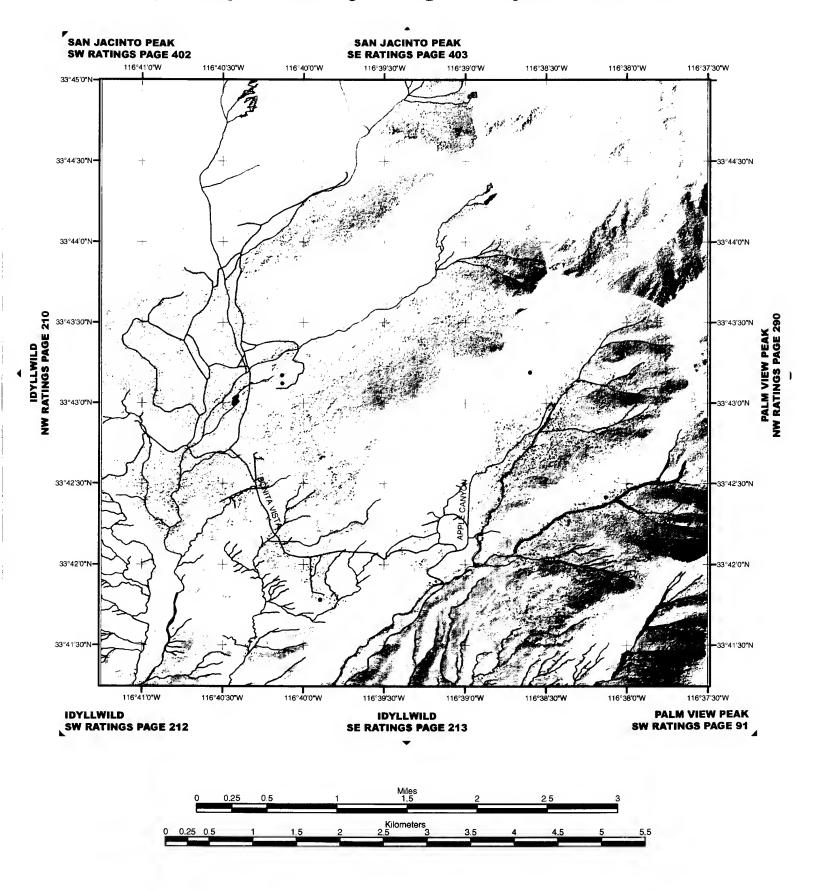
# Idyllwild Quadrangle Regulatory Probability Ratings for Aquatic Resources



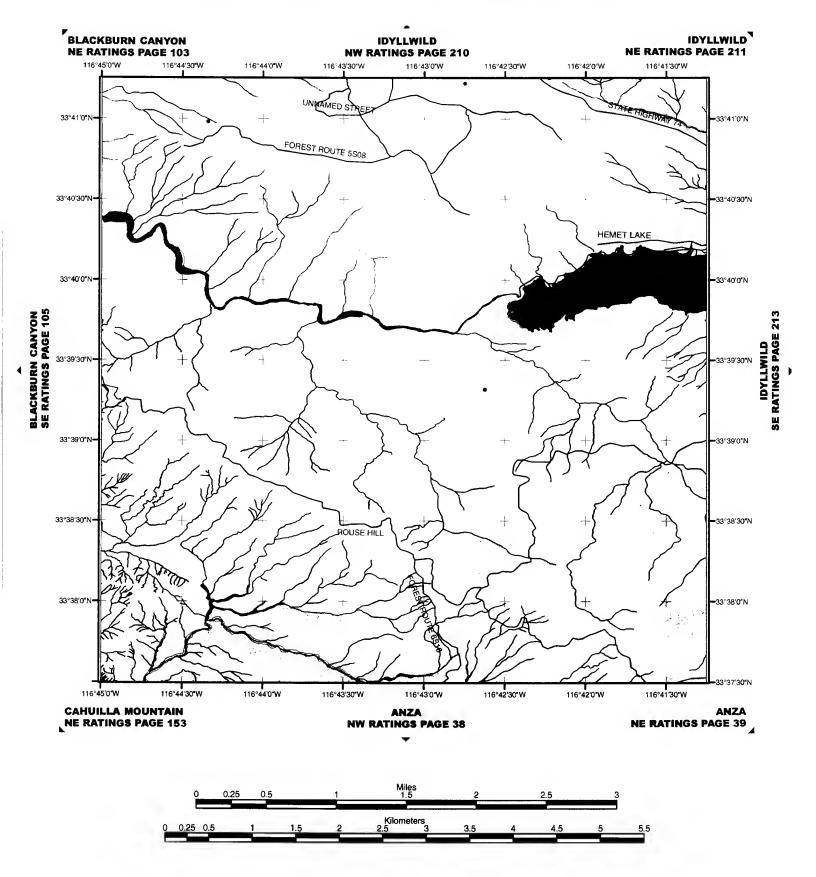
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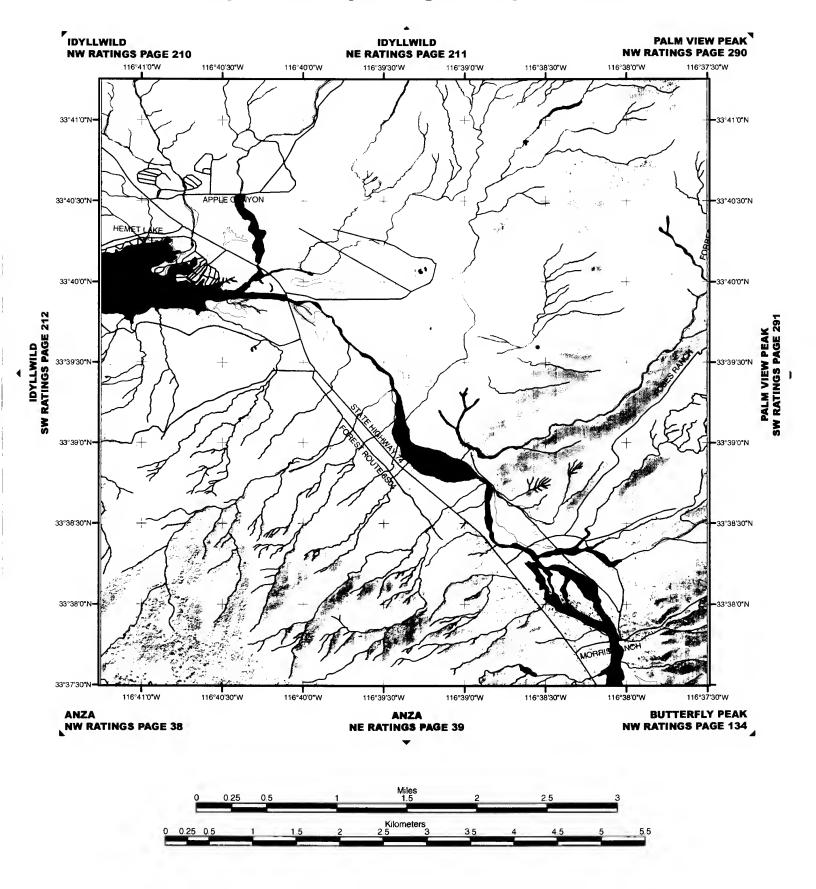
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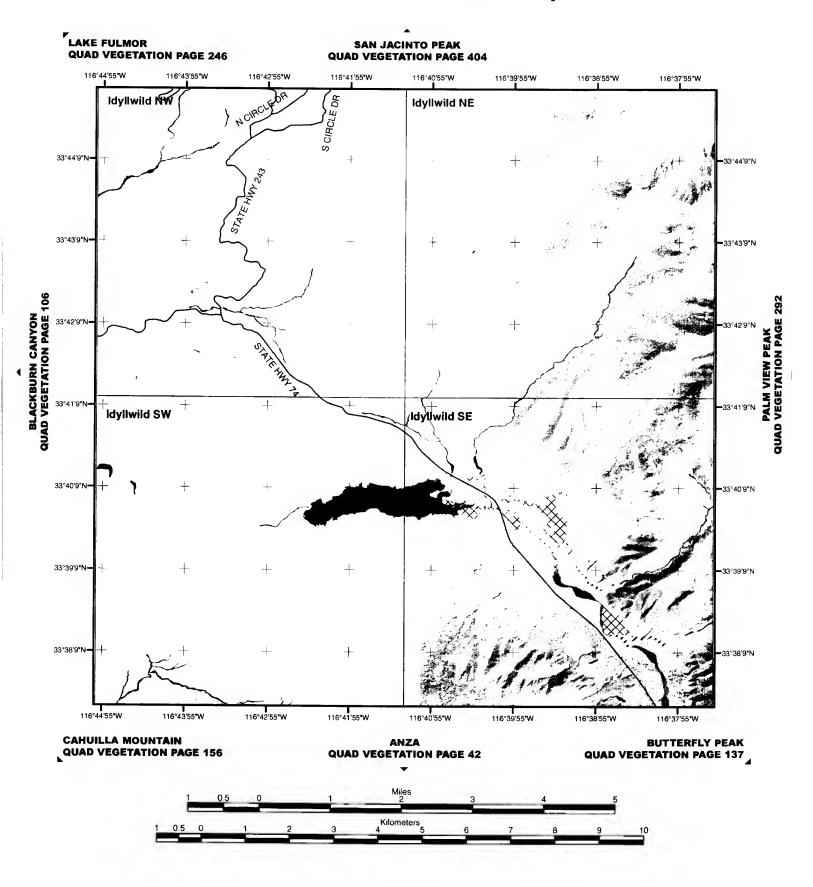
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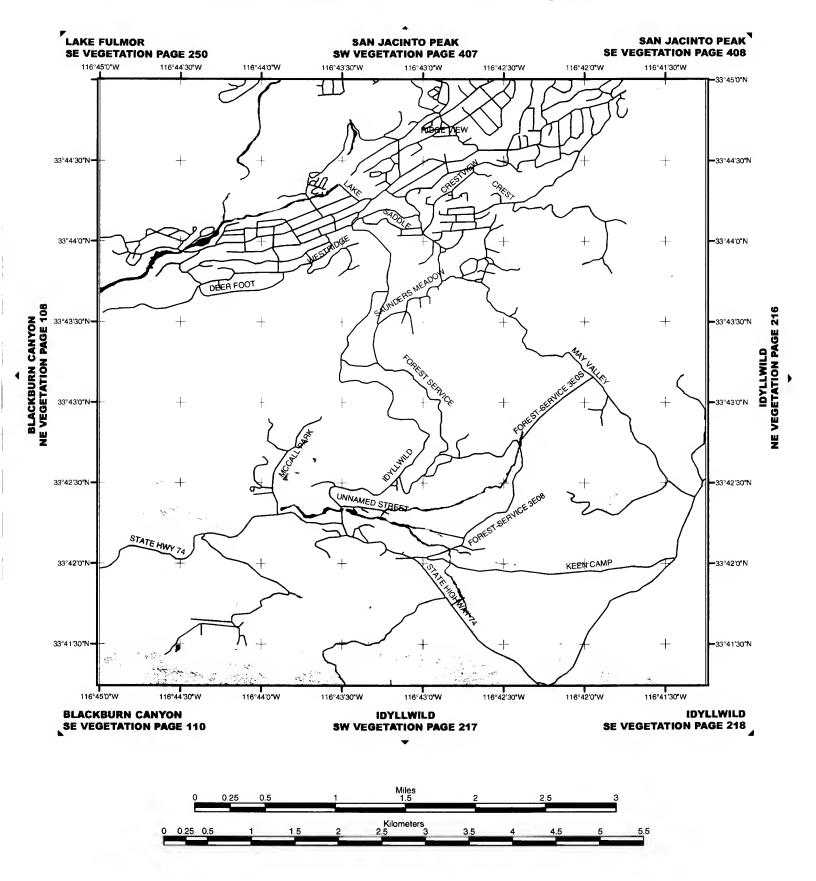
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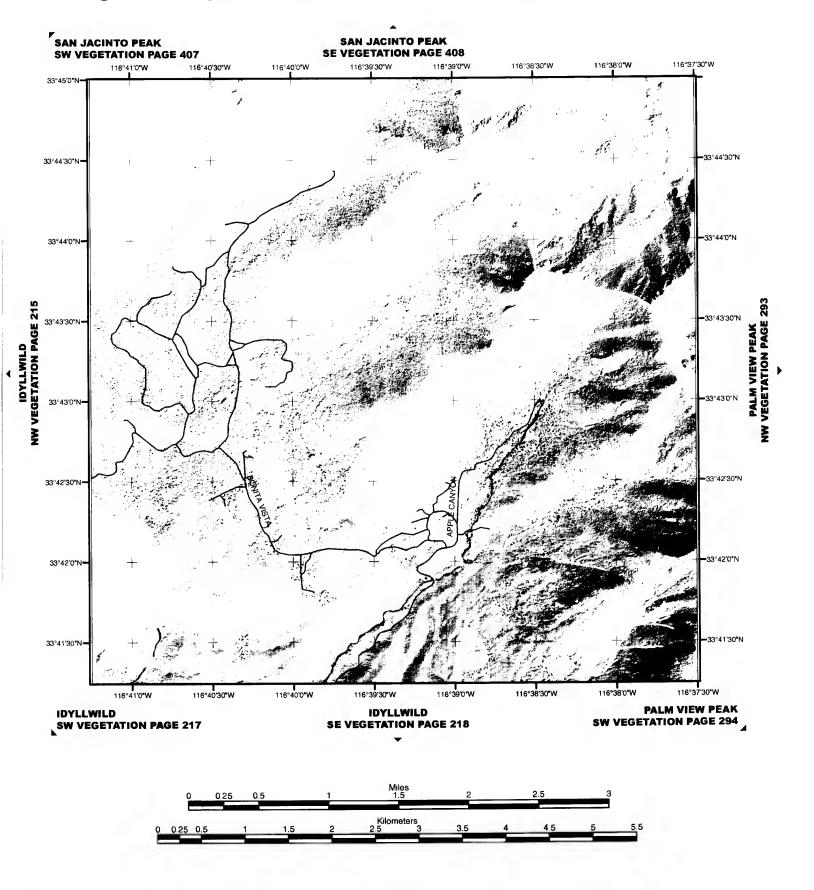
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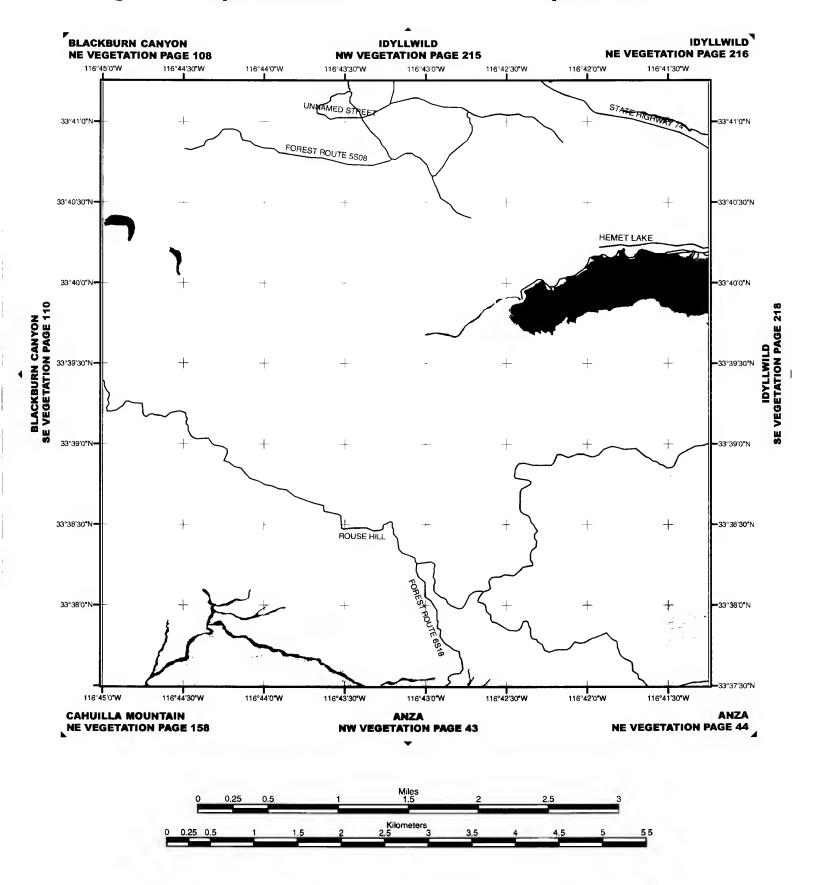
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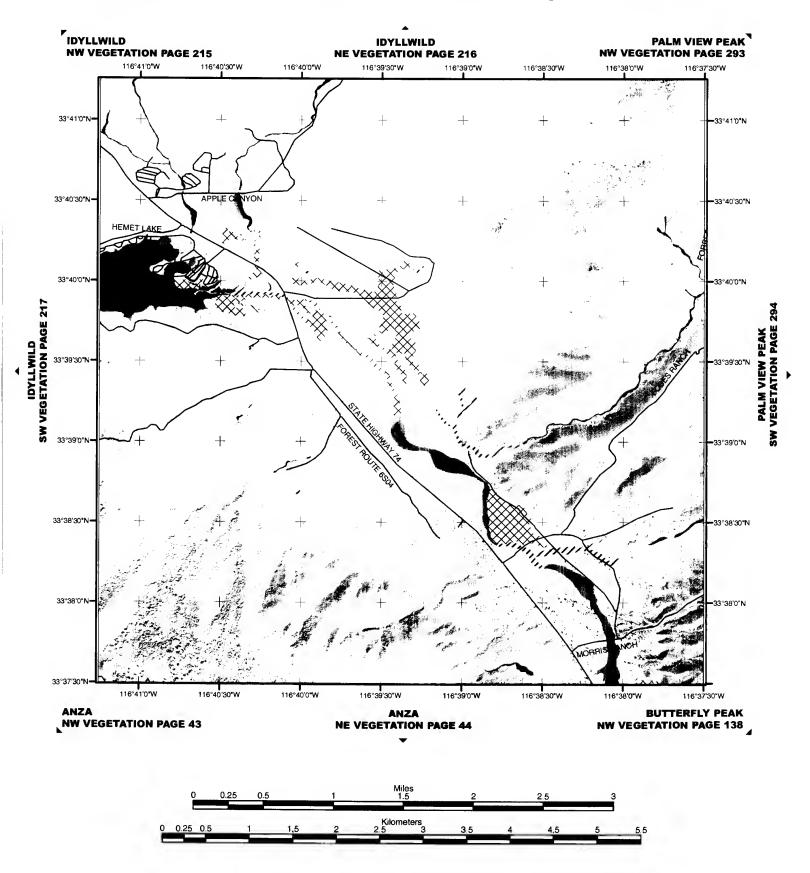
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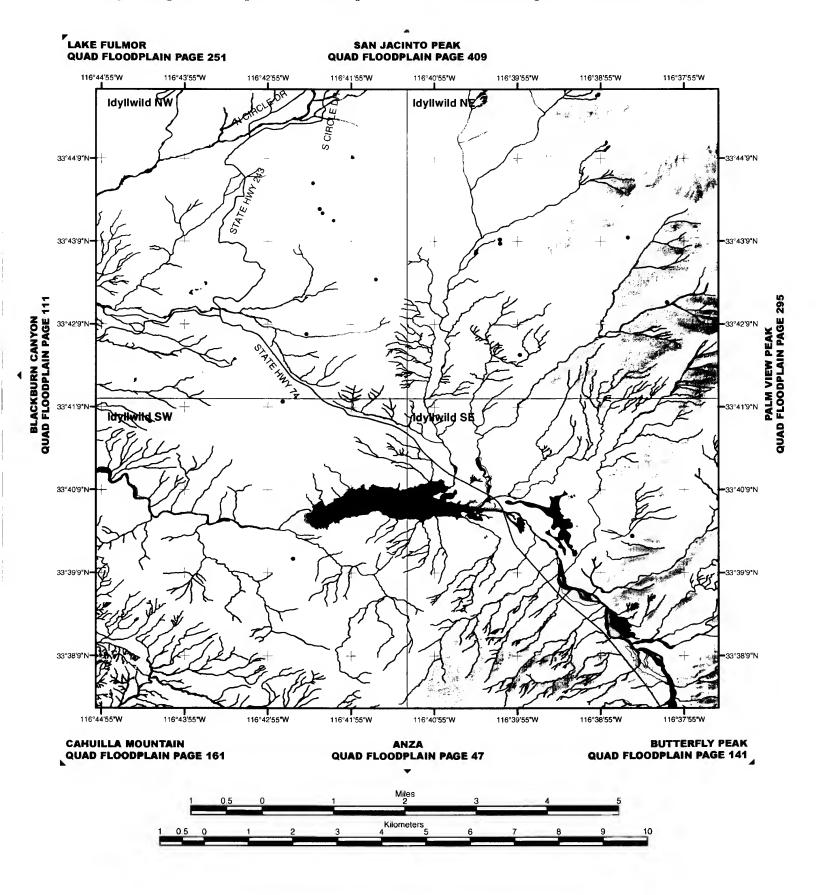
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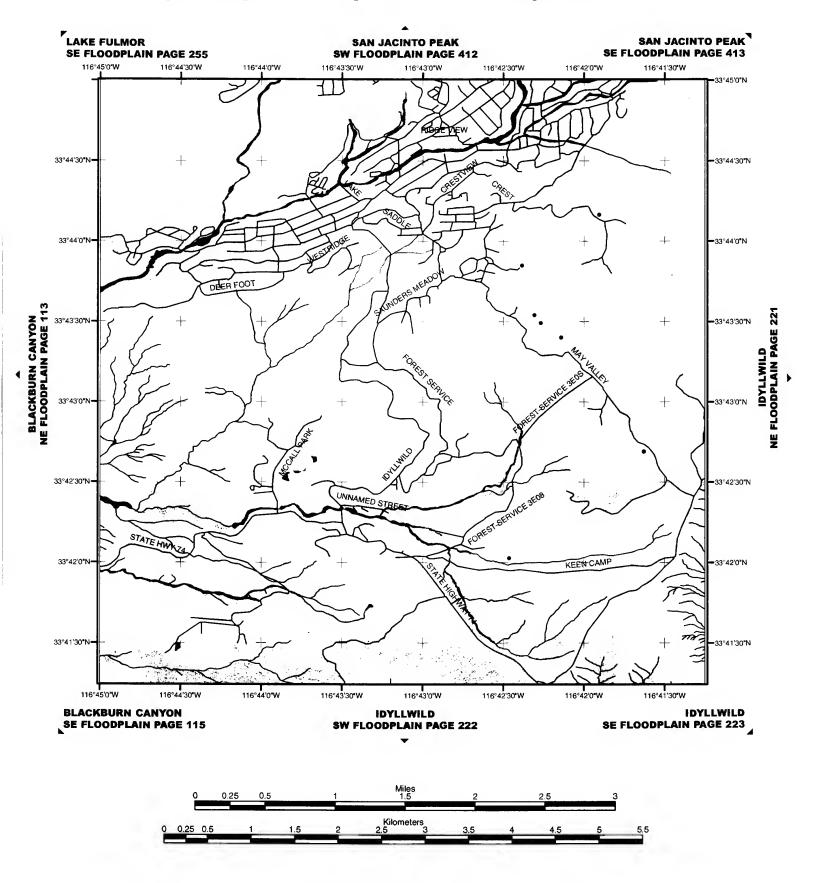
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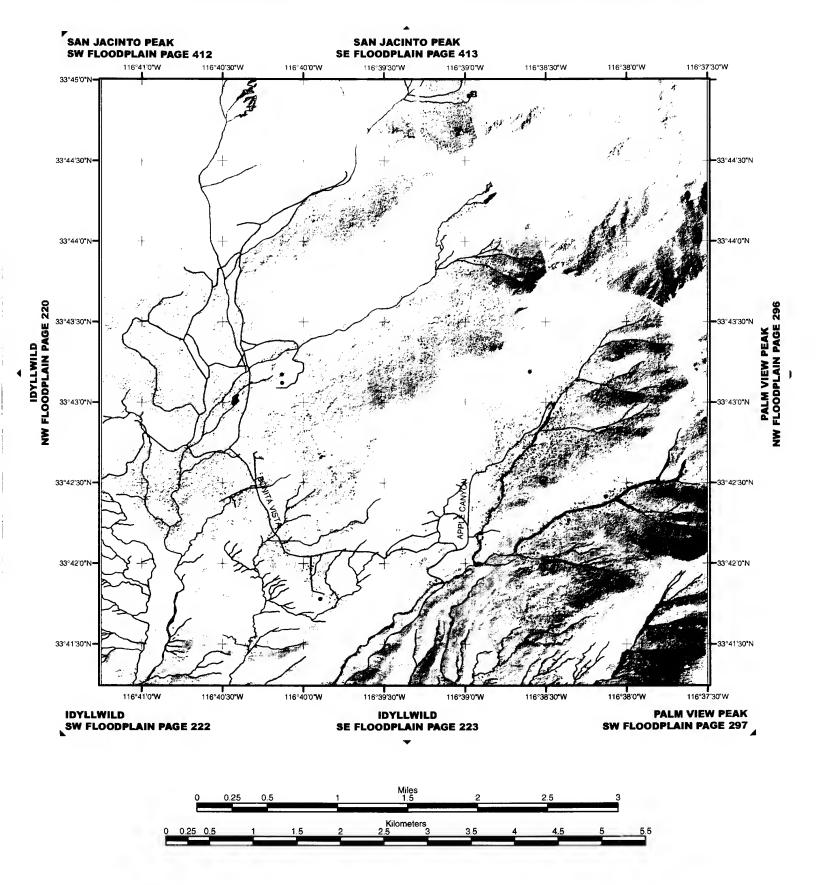
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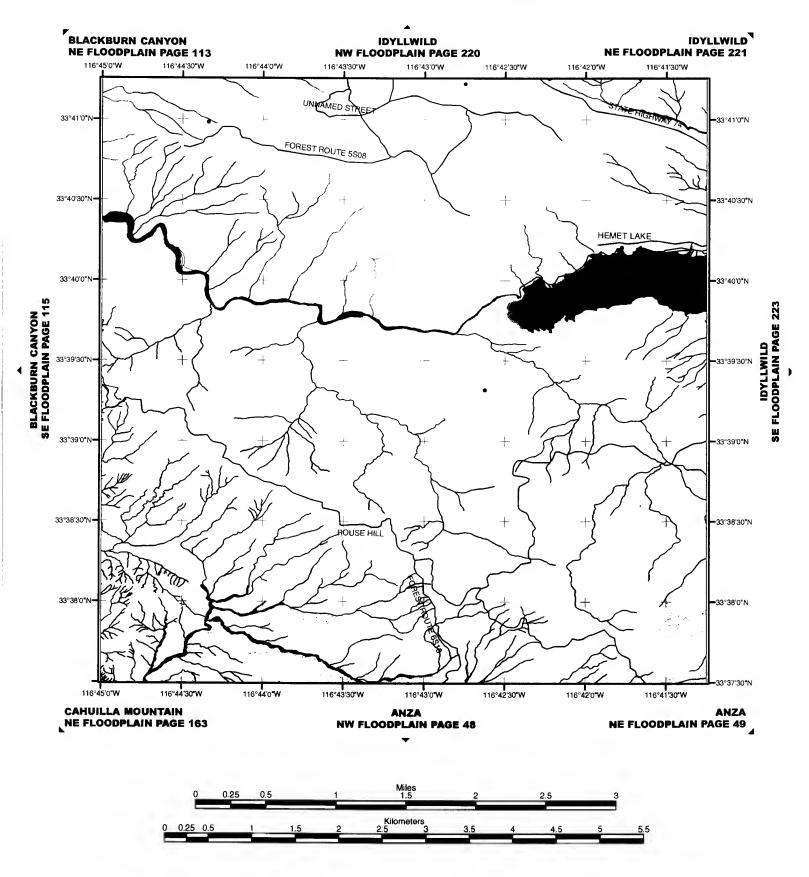
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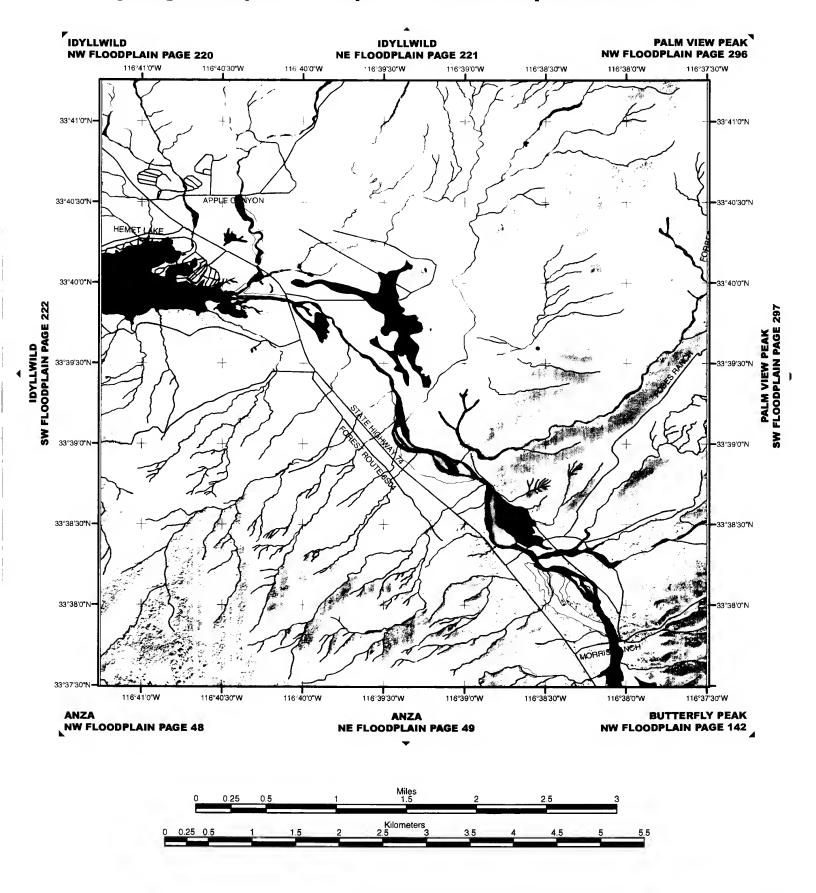
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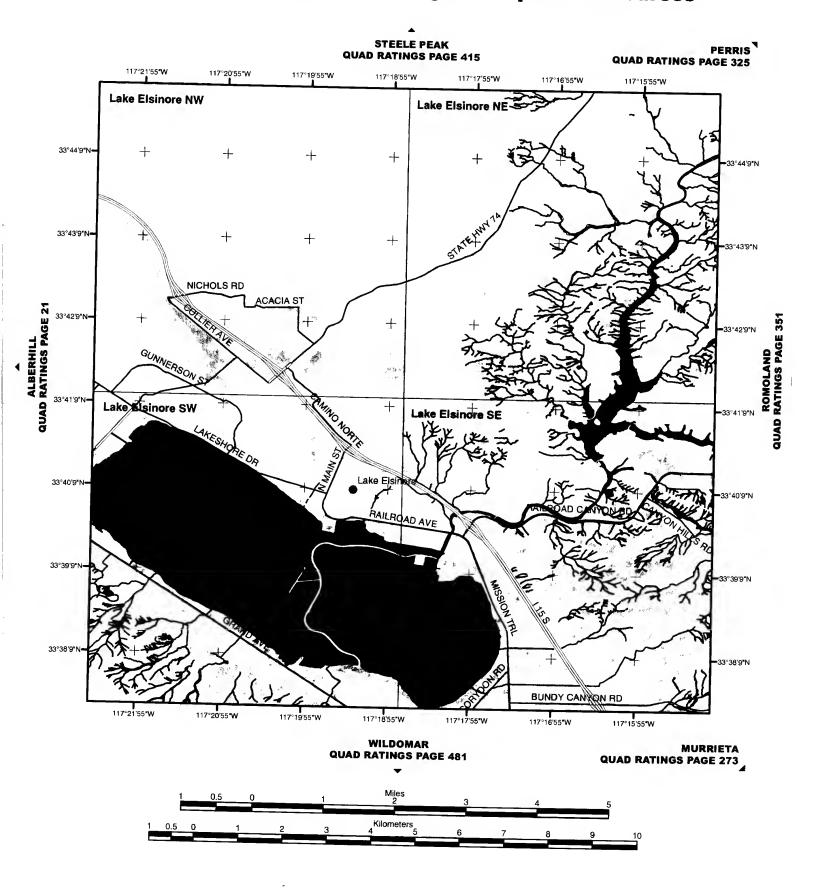
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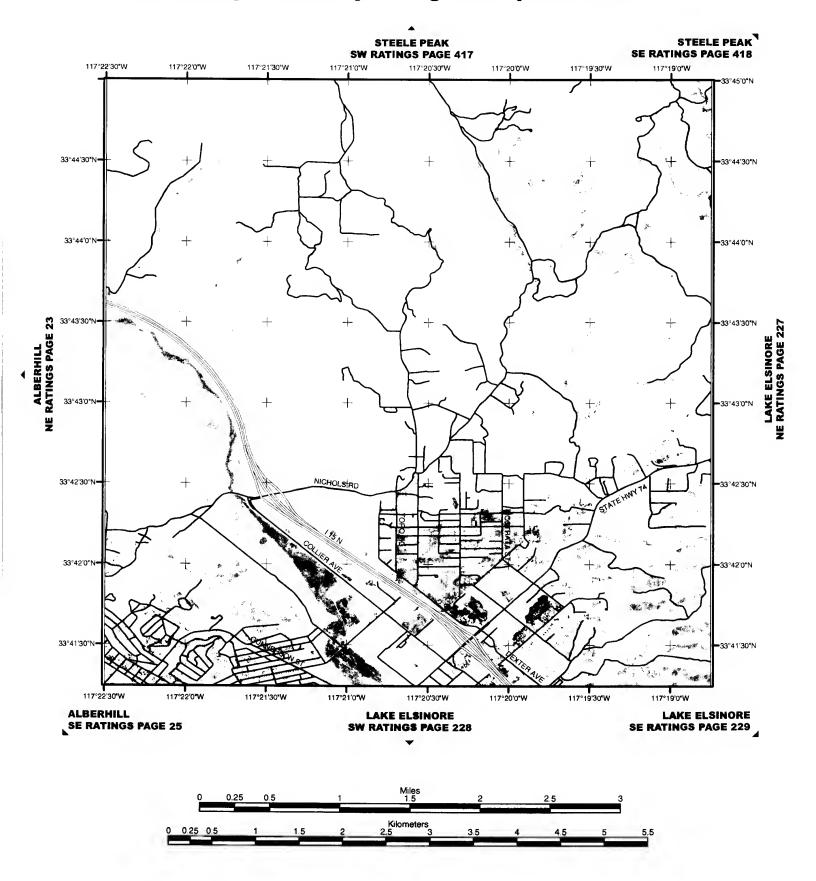
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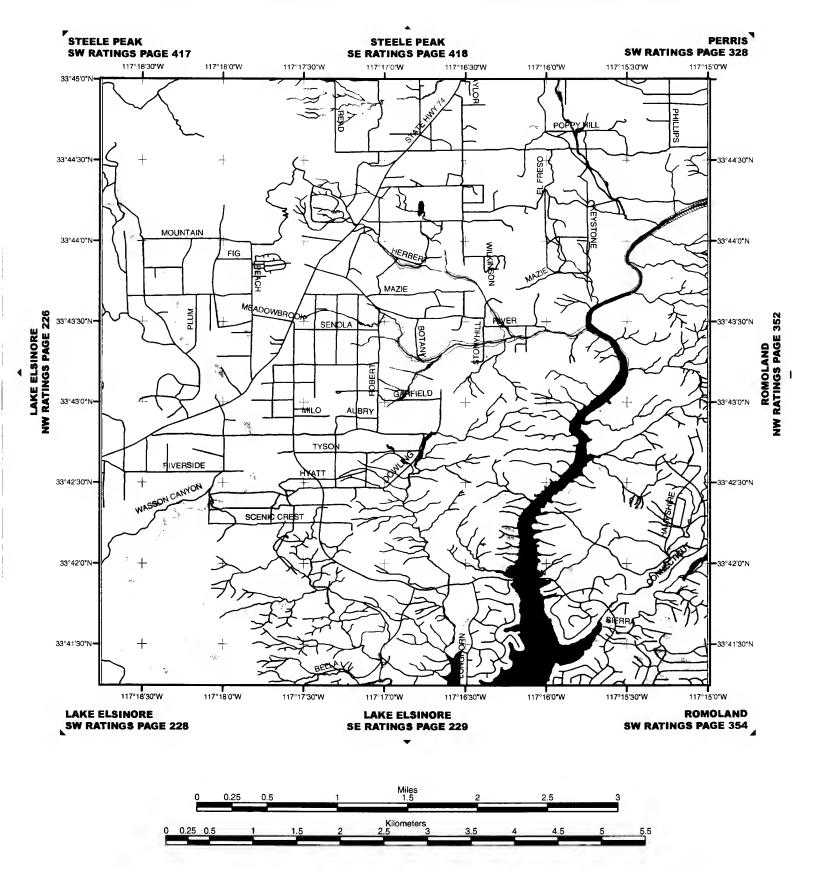
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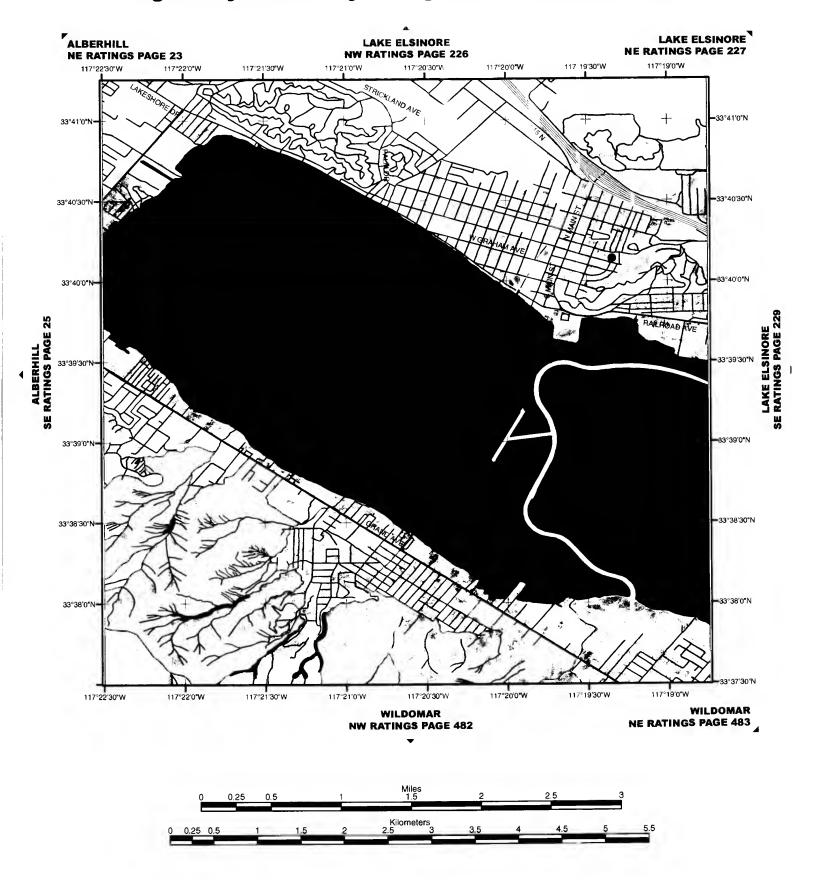
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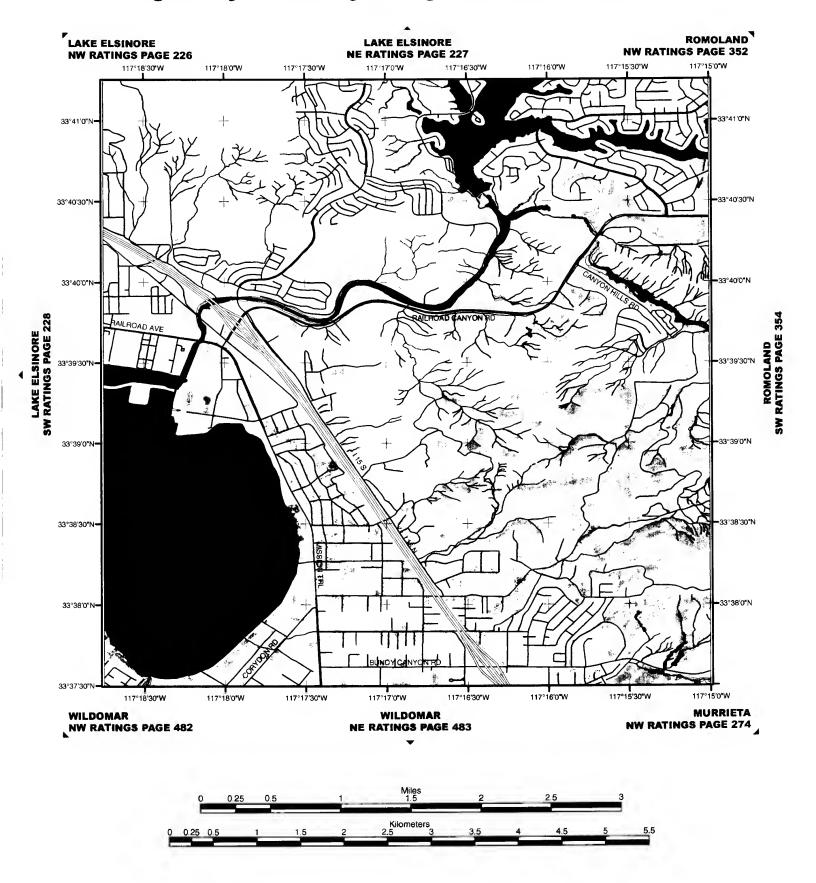
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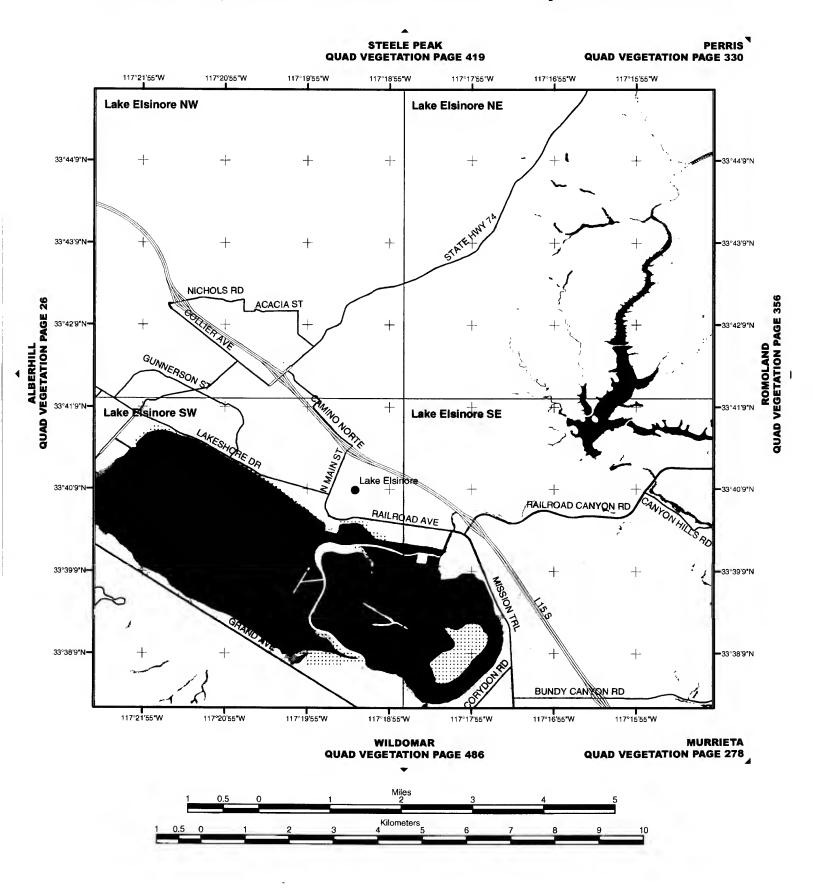
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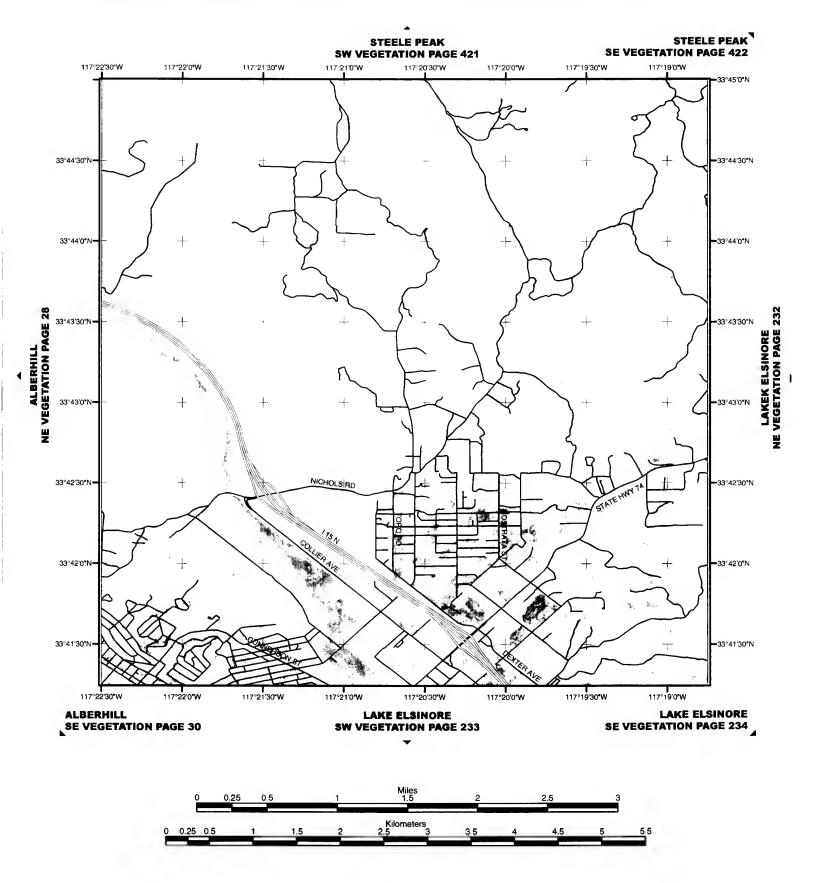
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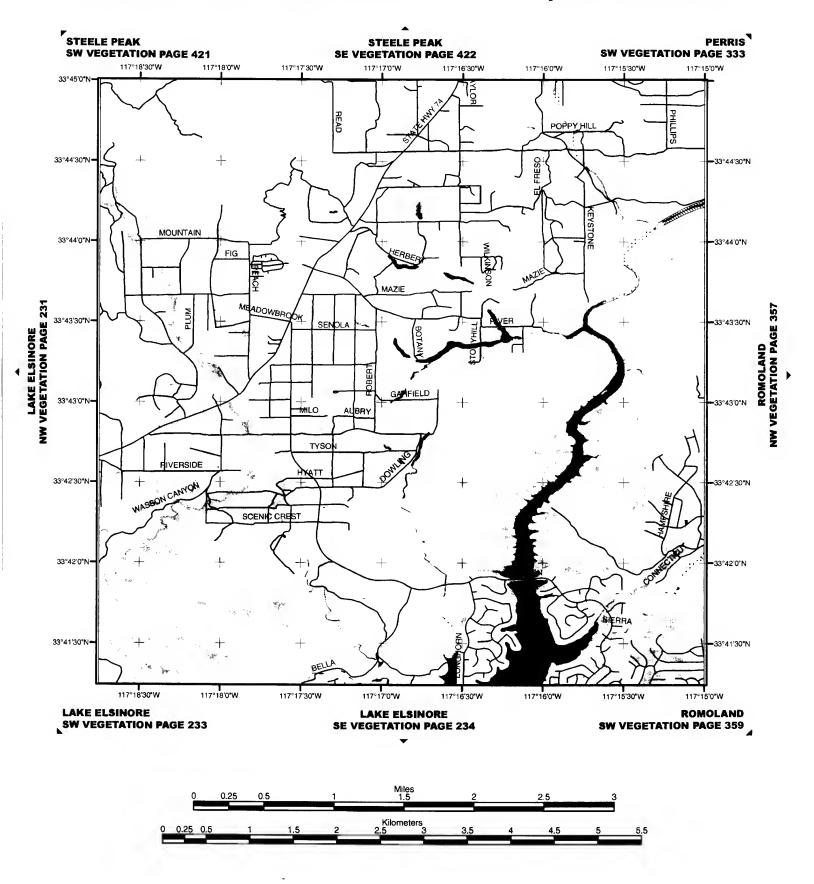
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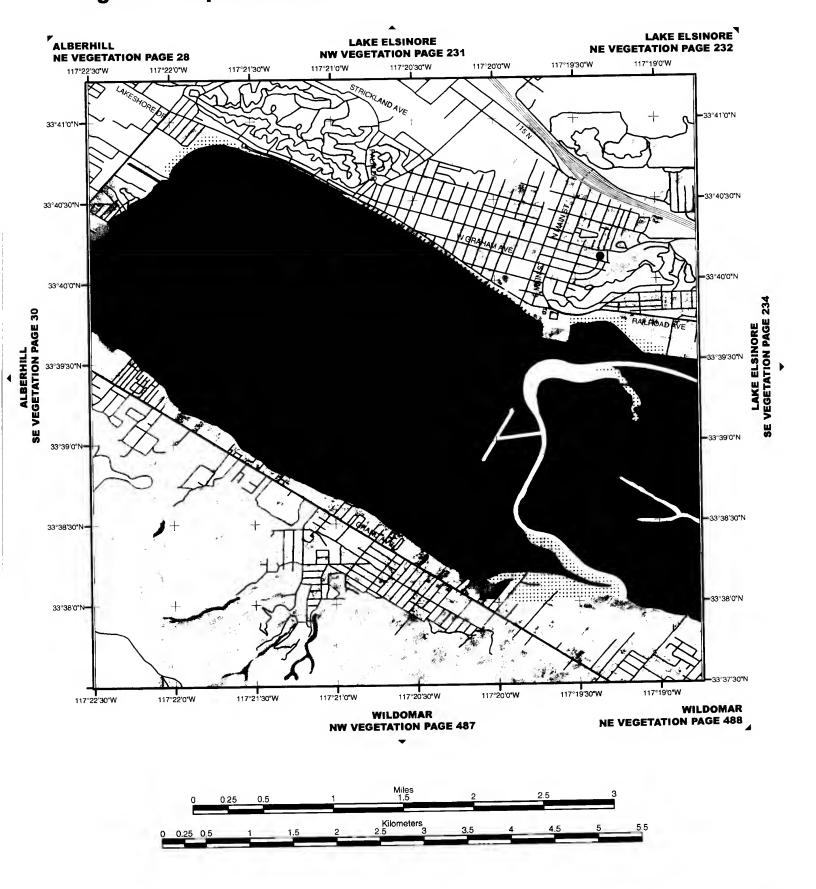
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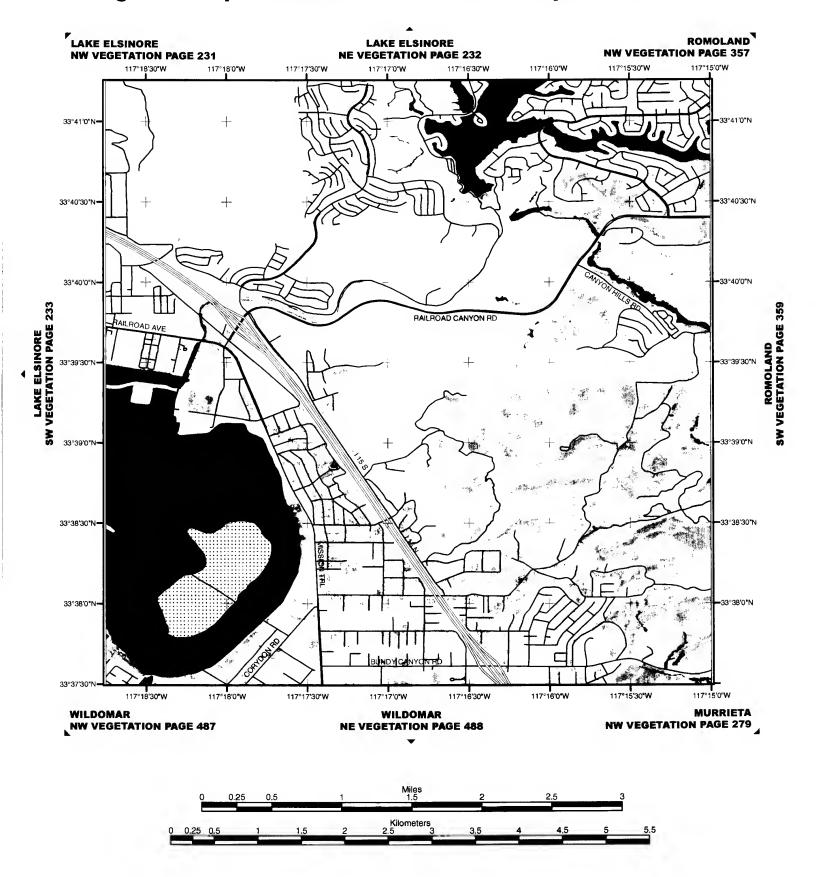
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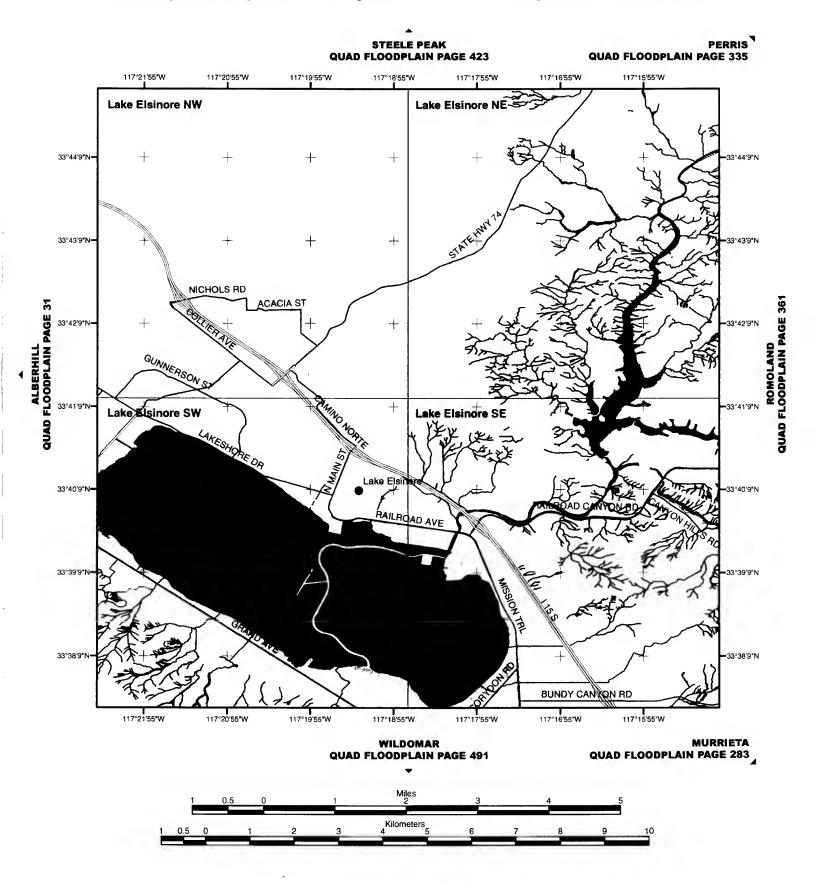
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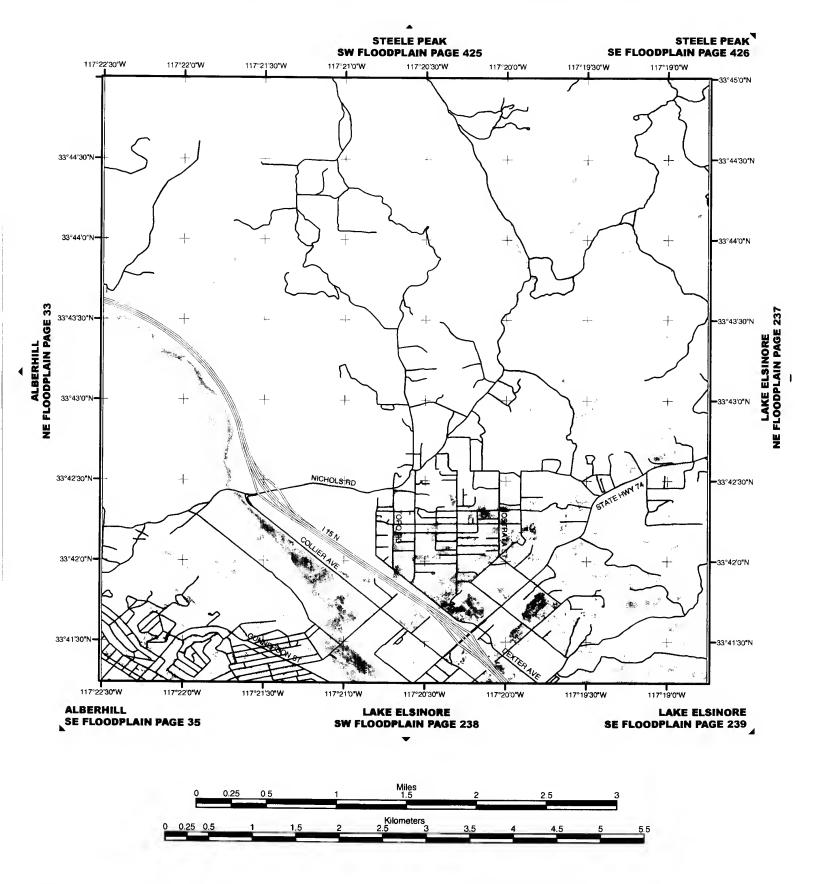
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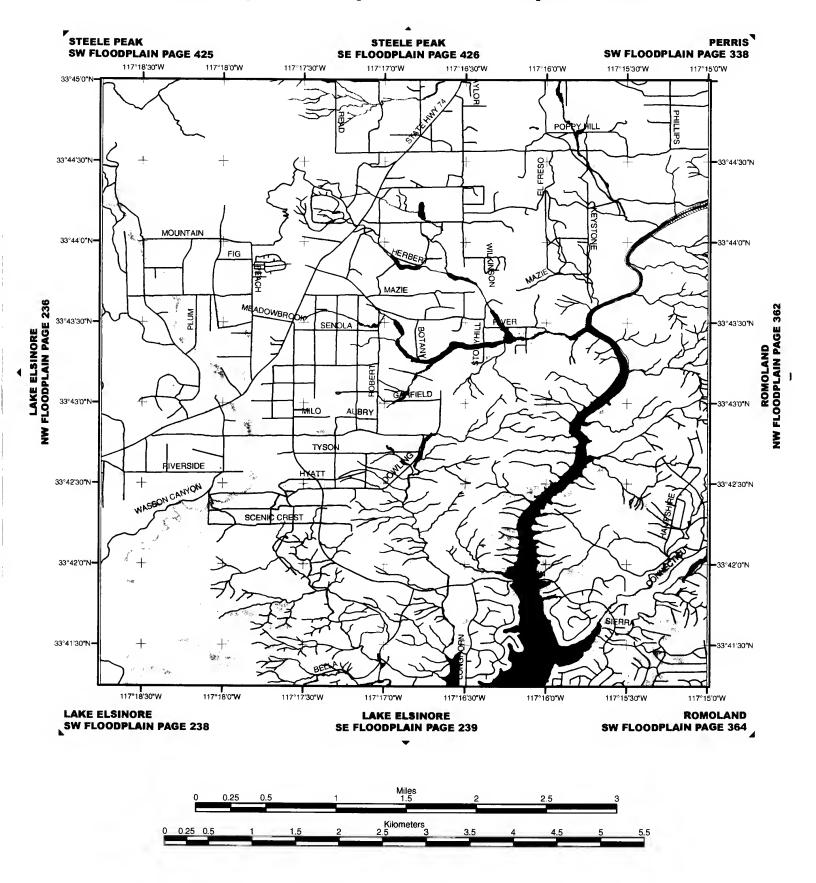
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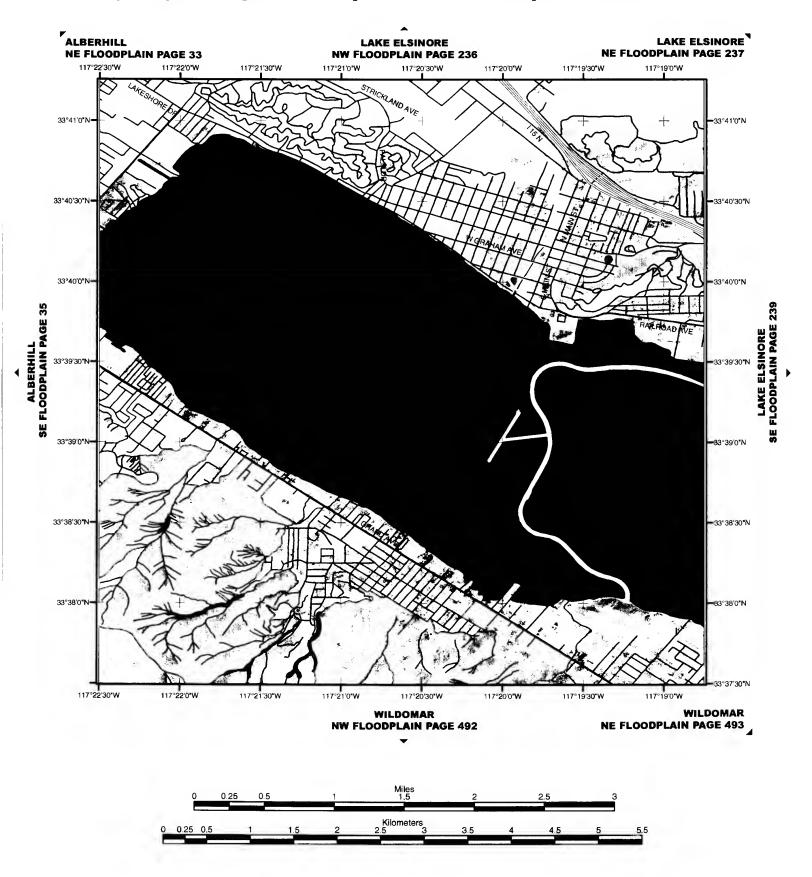
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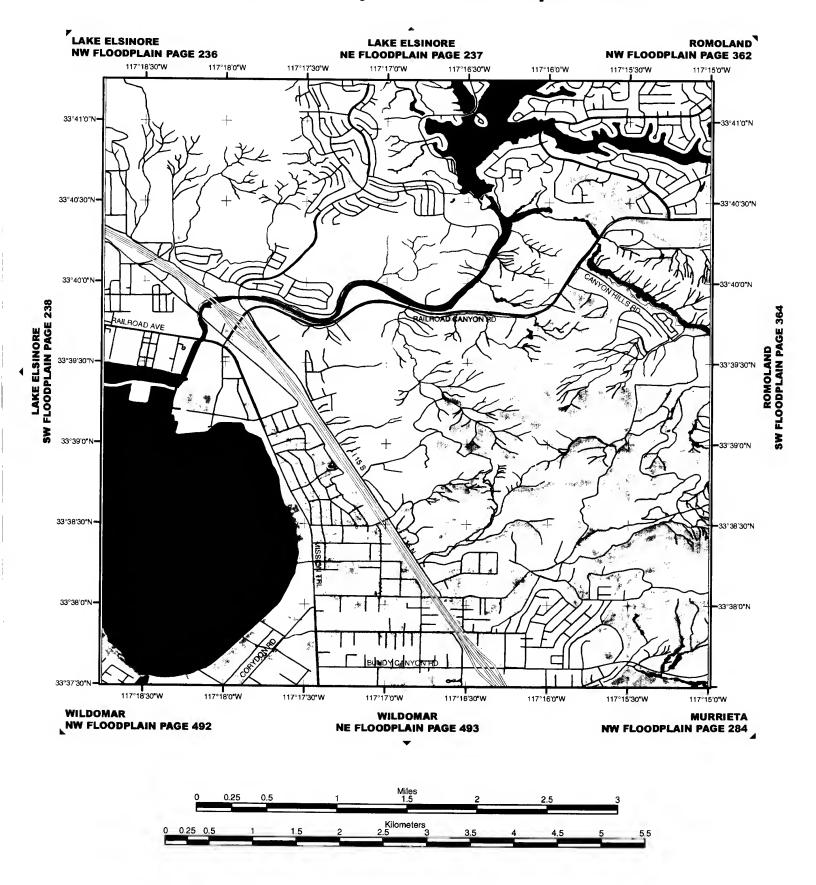
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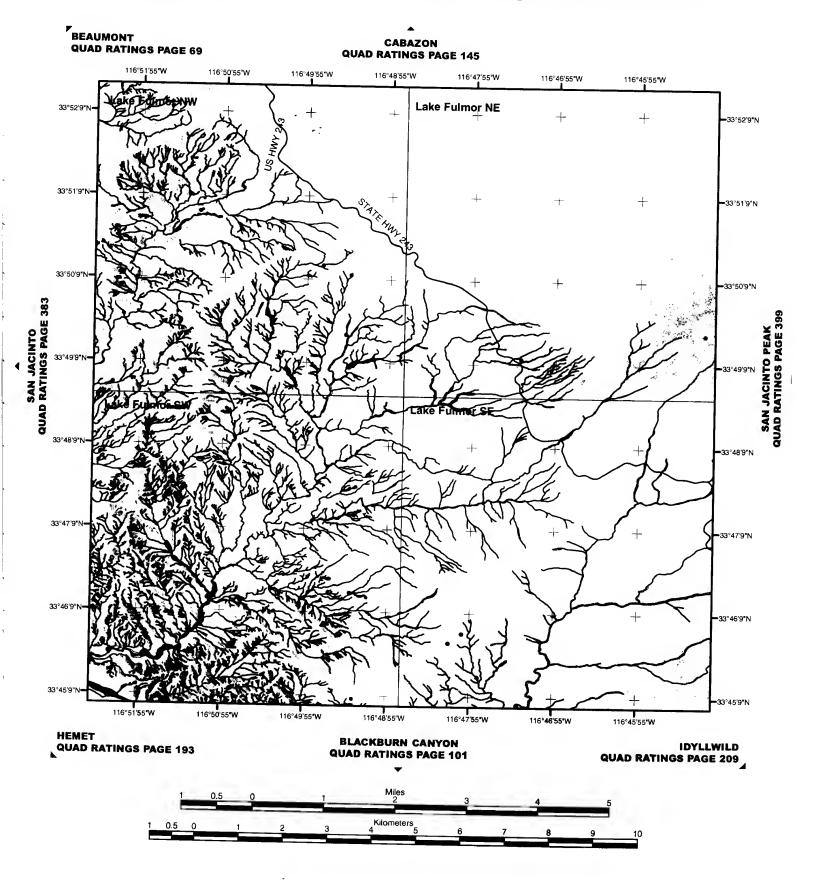
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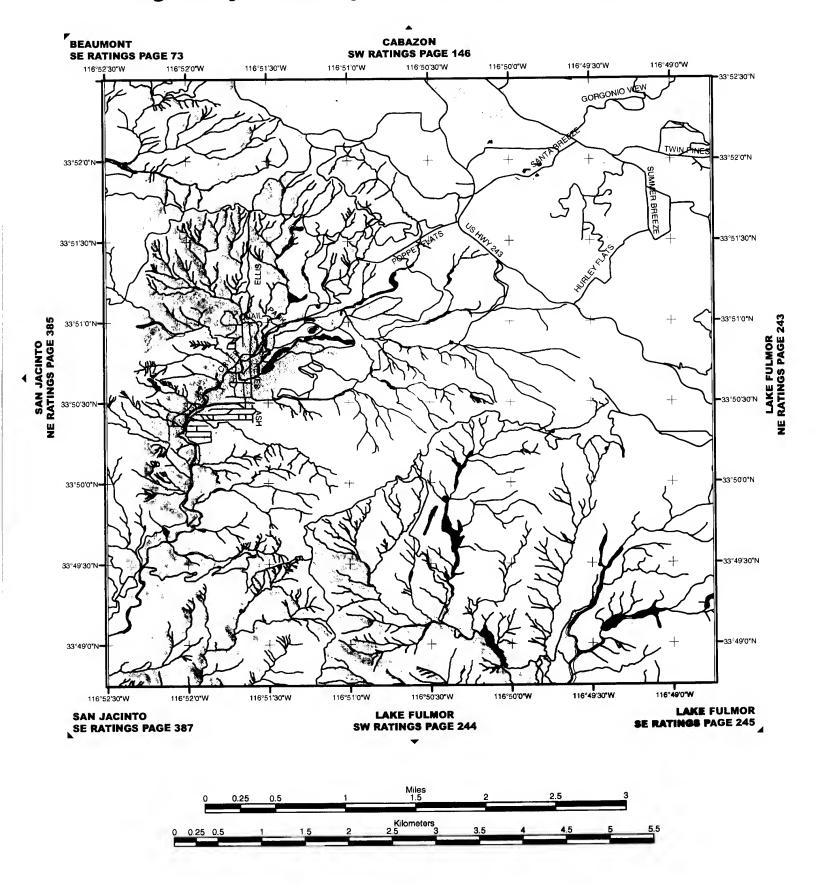
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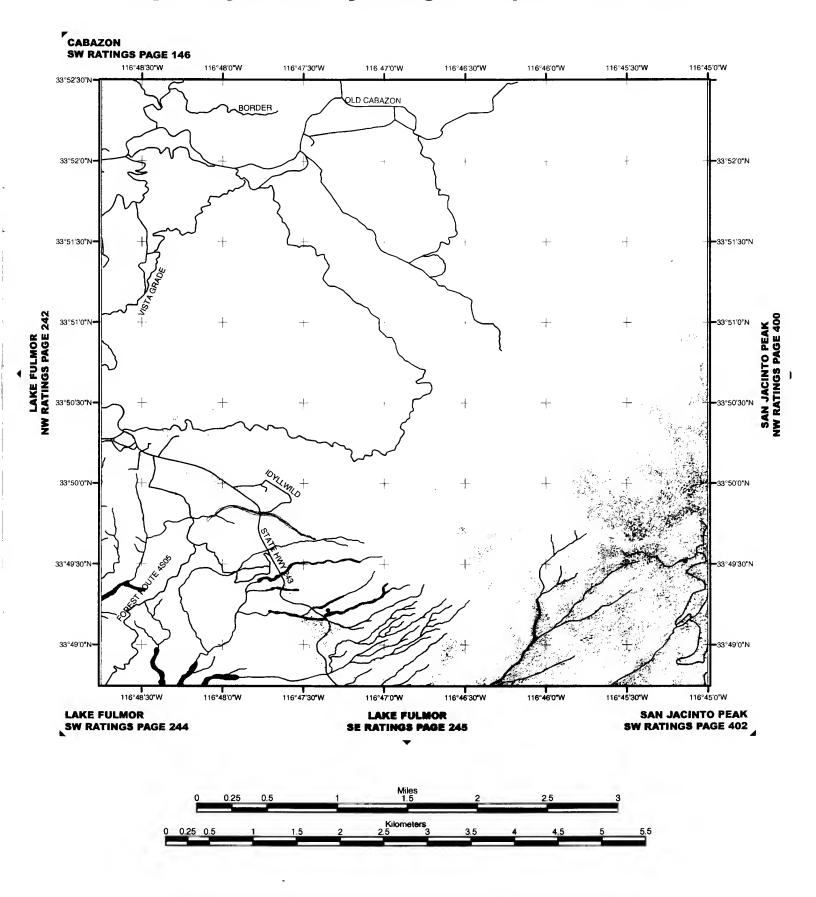
### Lake Fulmor Quadrangle Regulatory Probability Ratings for Aquatic Resources



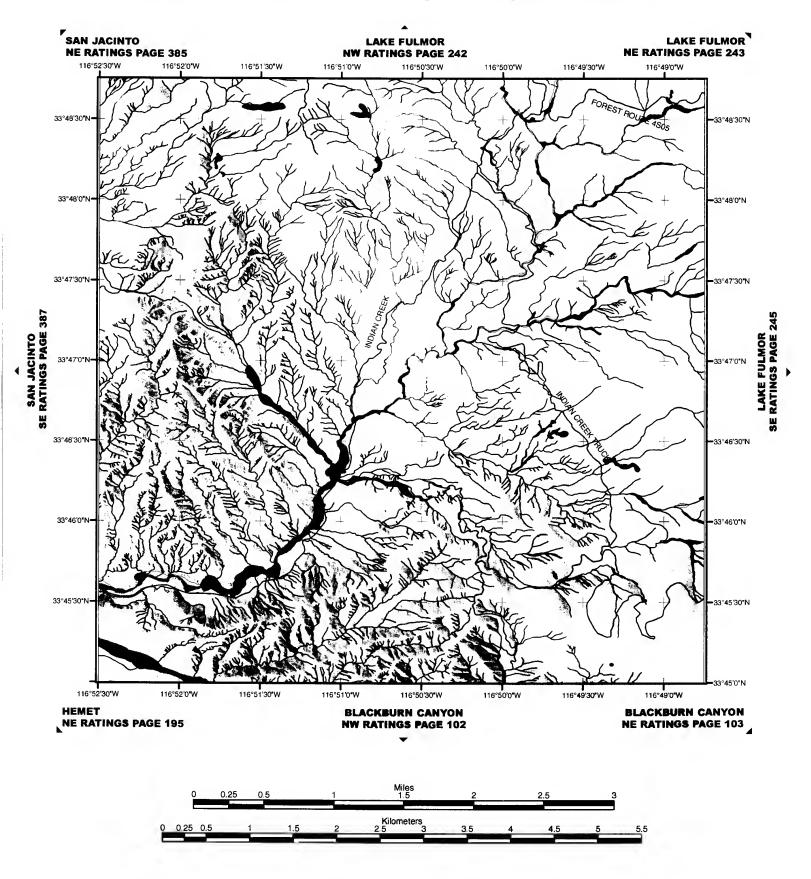
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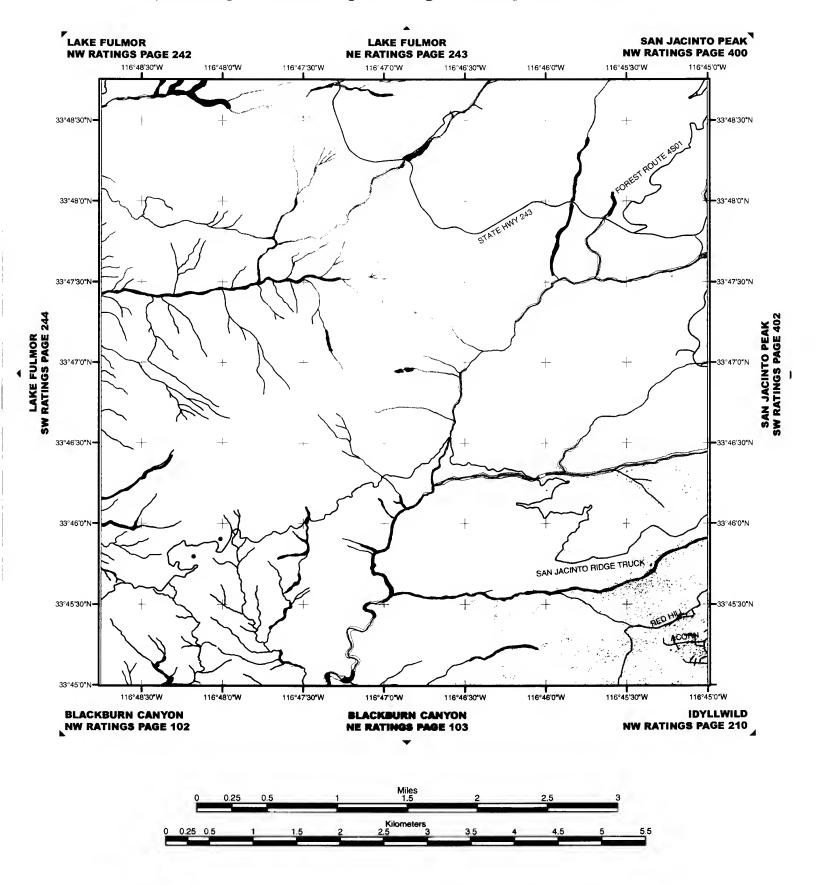
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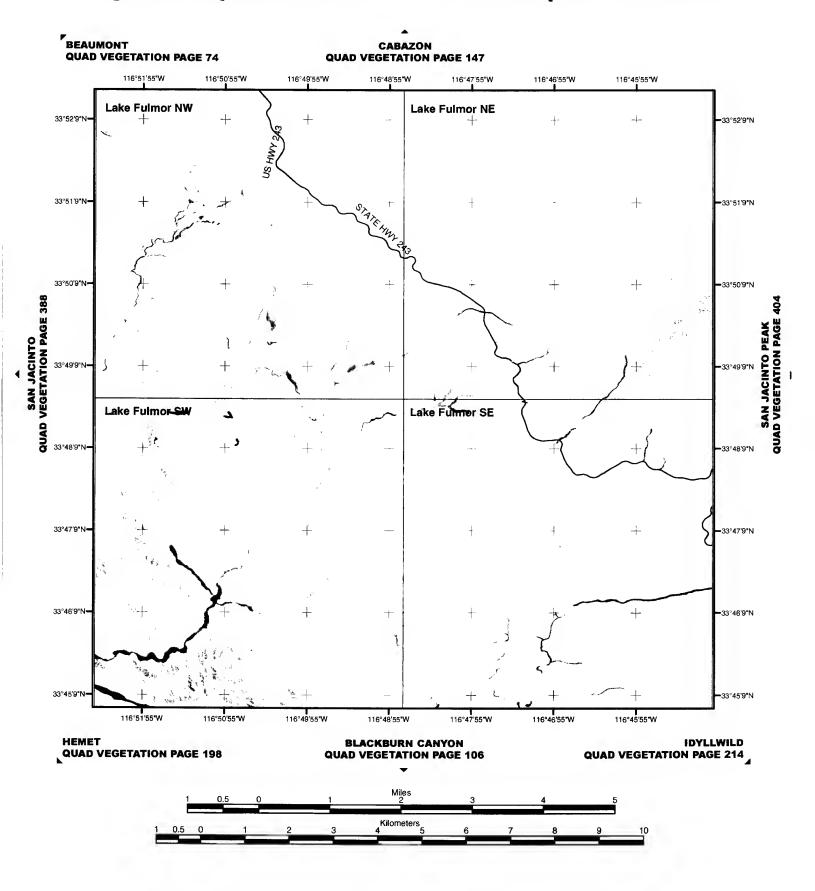
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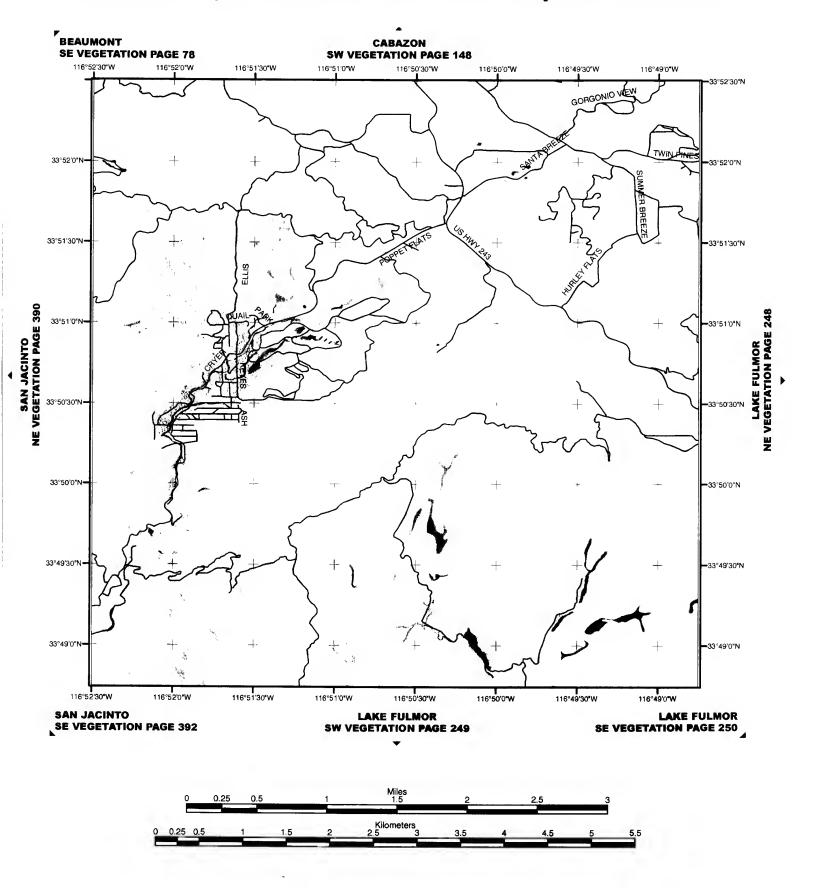
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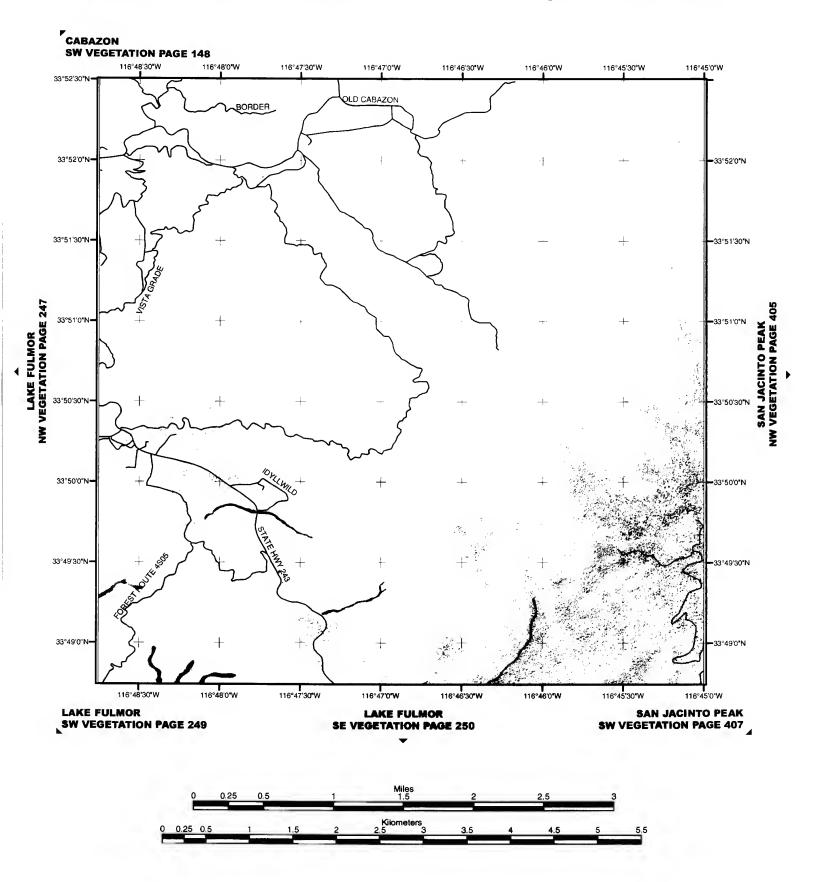
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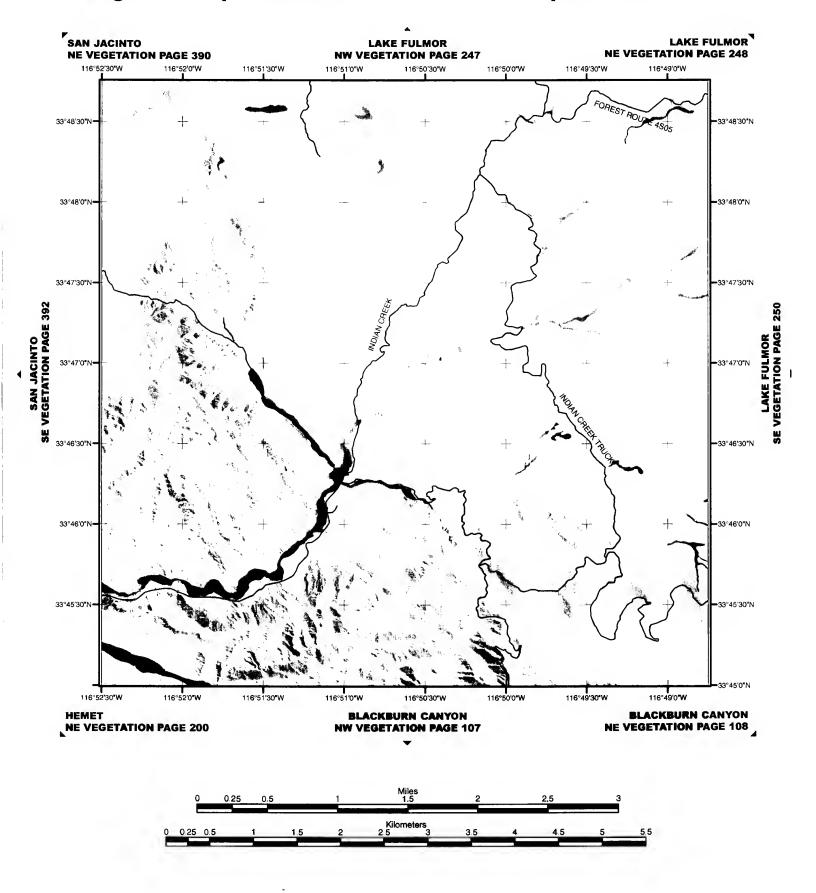
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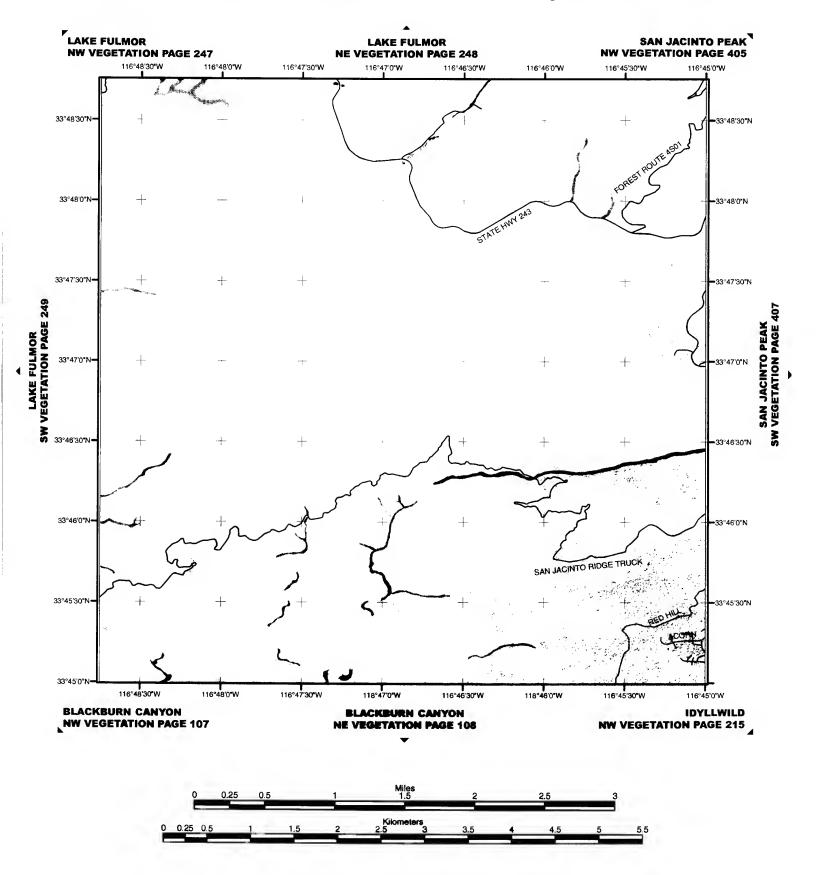
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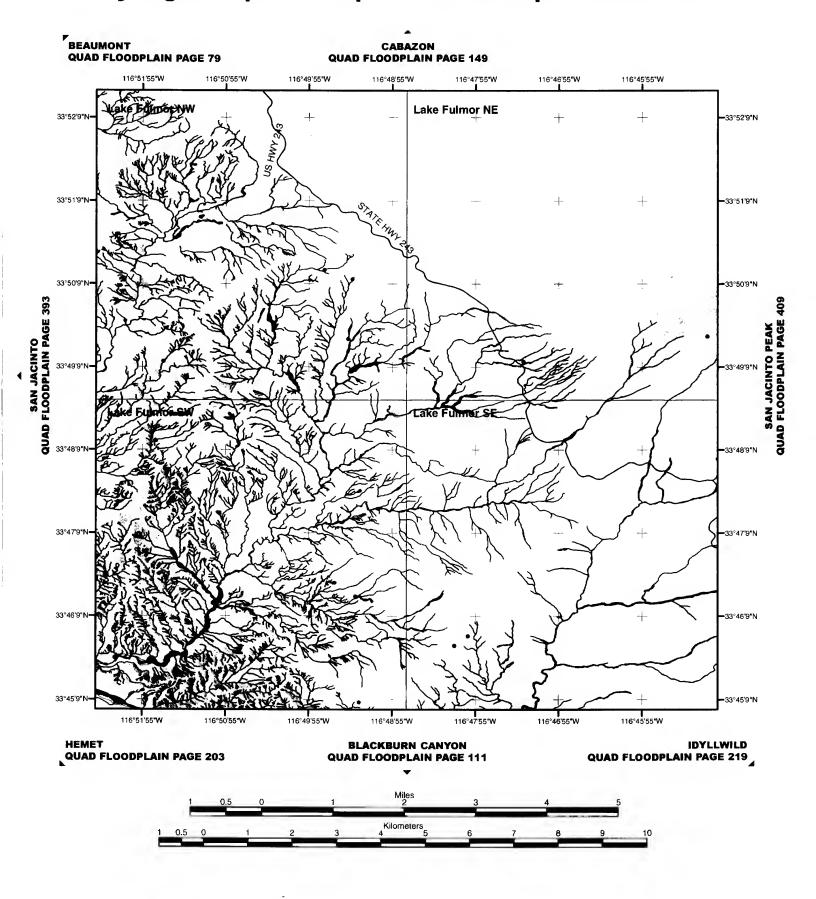
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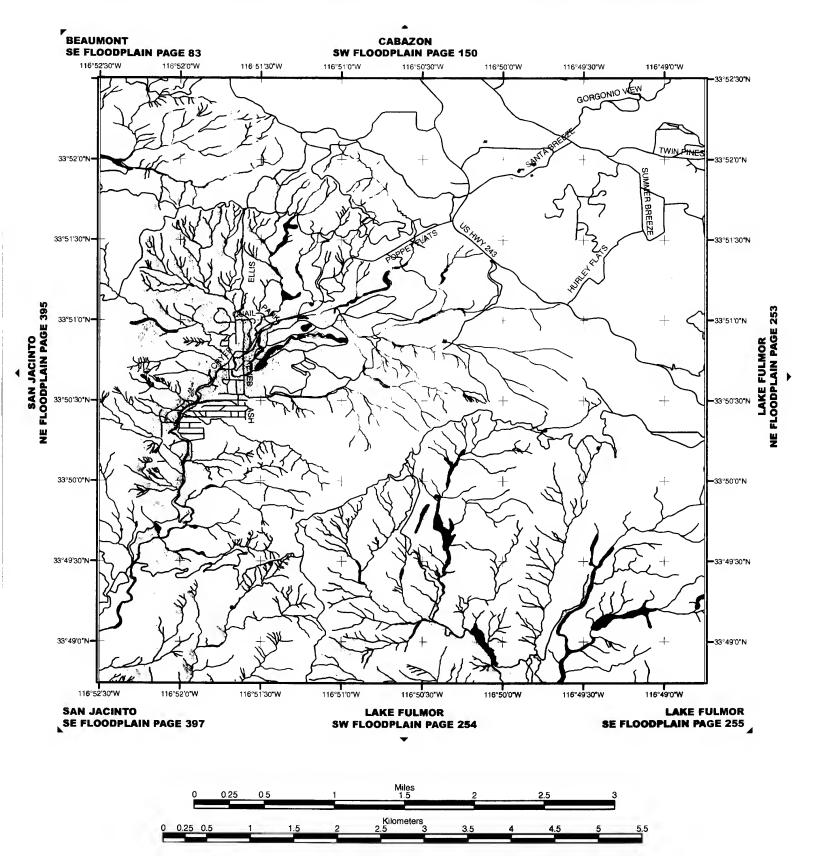
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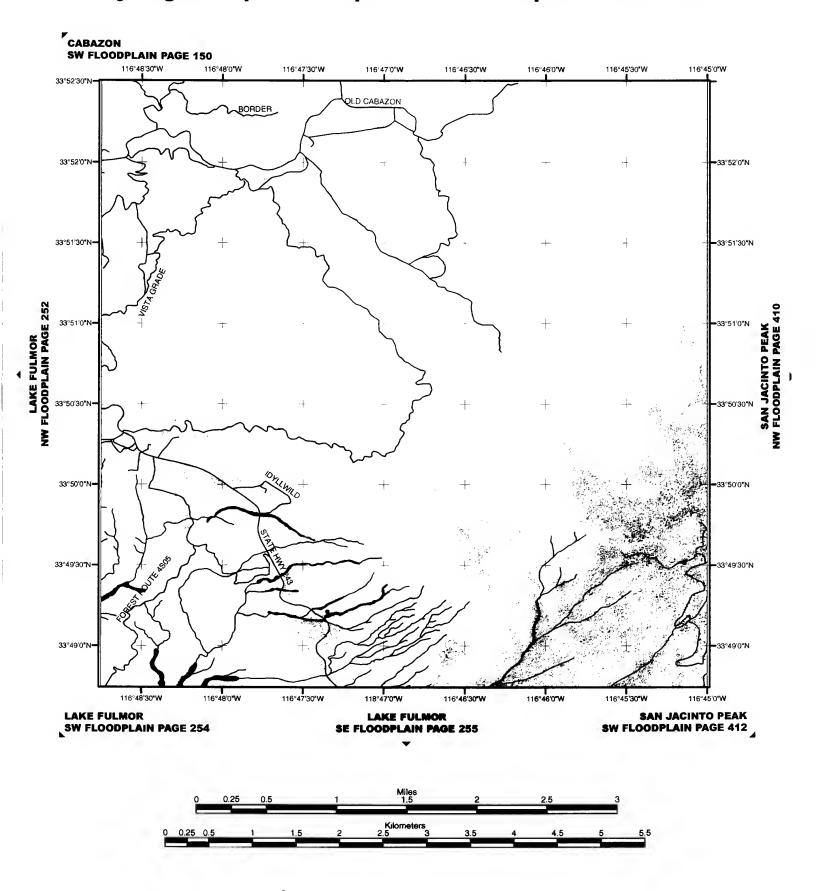
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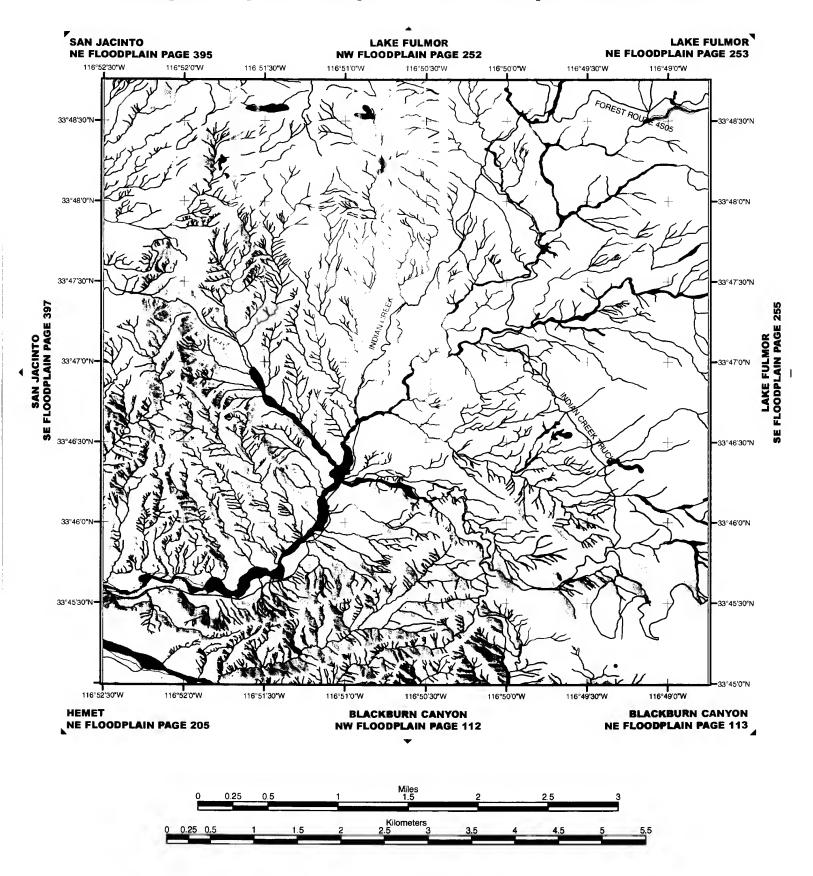
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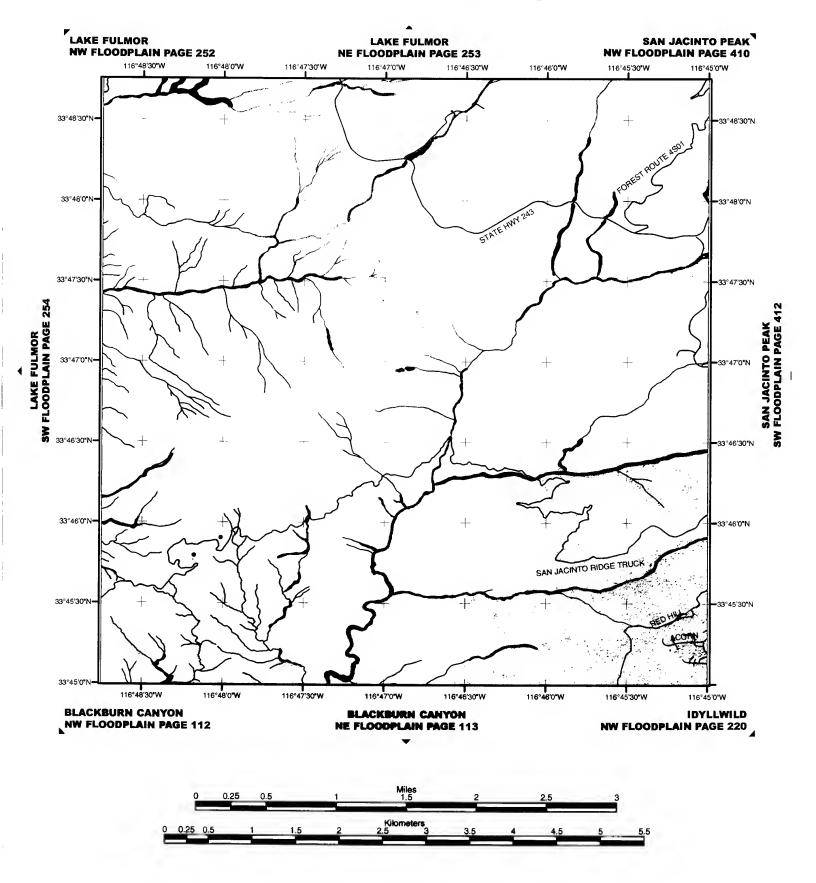
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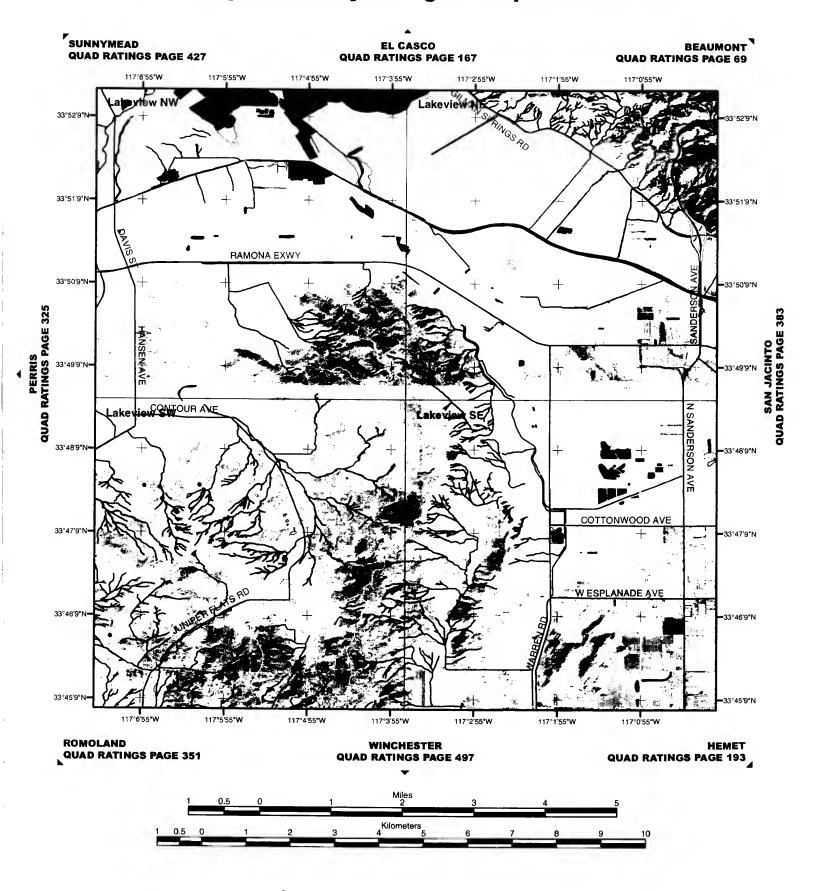
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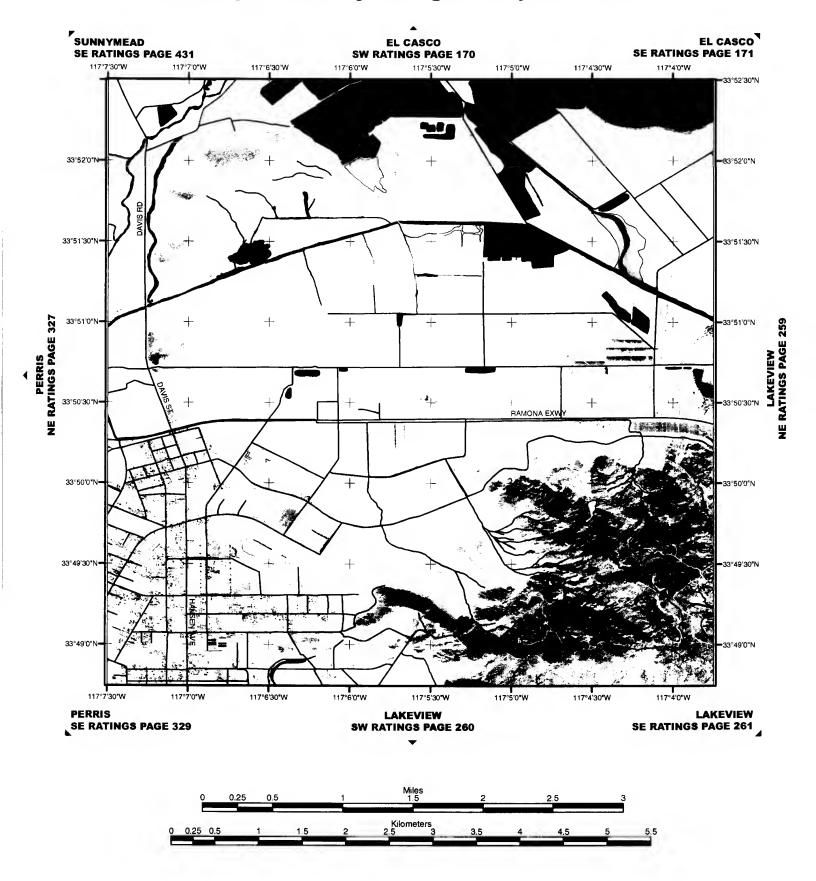
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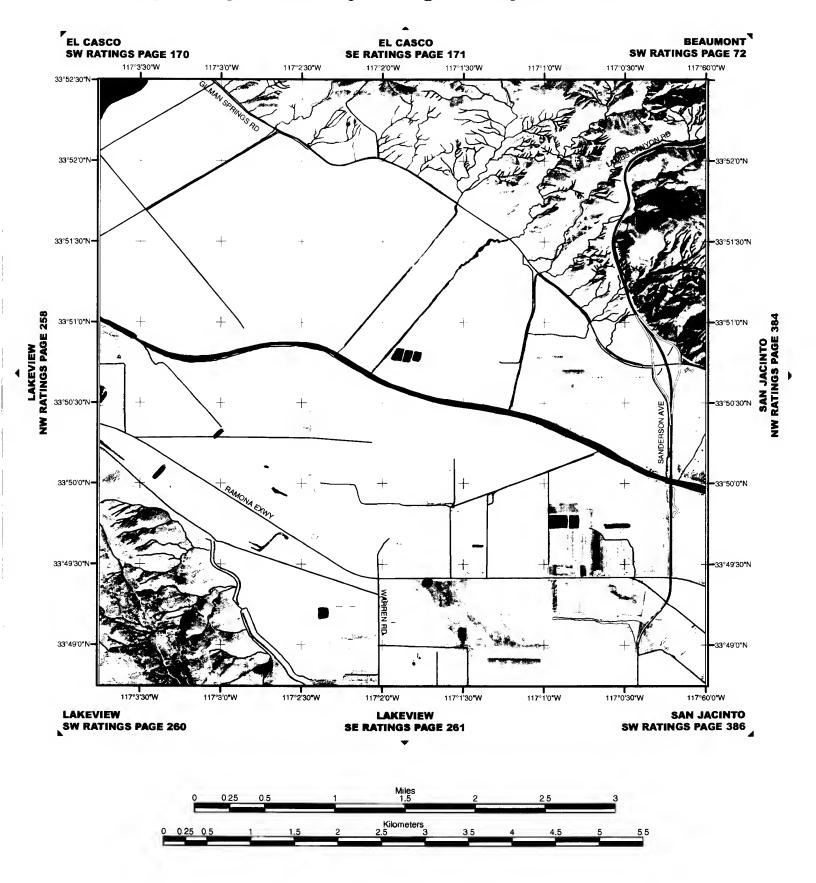
### Lakeview Quadrangle Regulatory Probability Ratings for Aquatic Resources



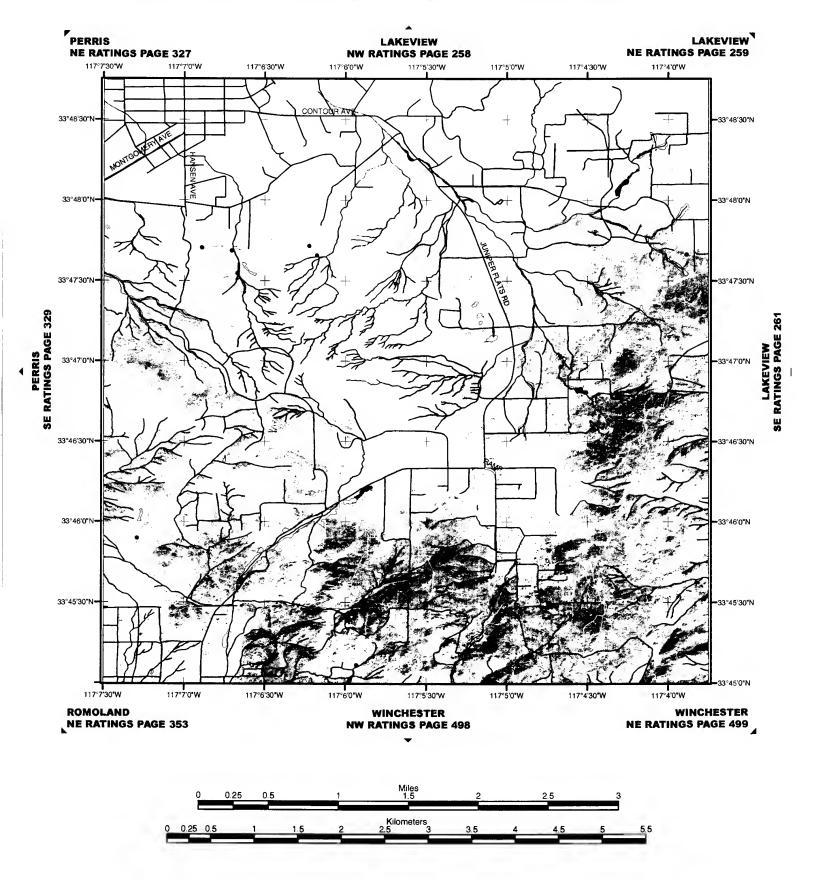
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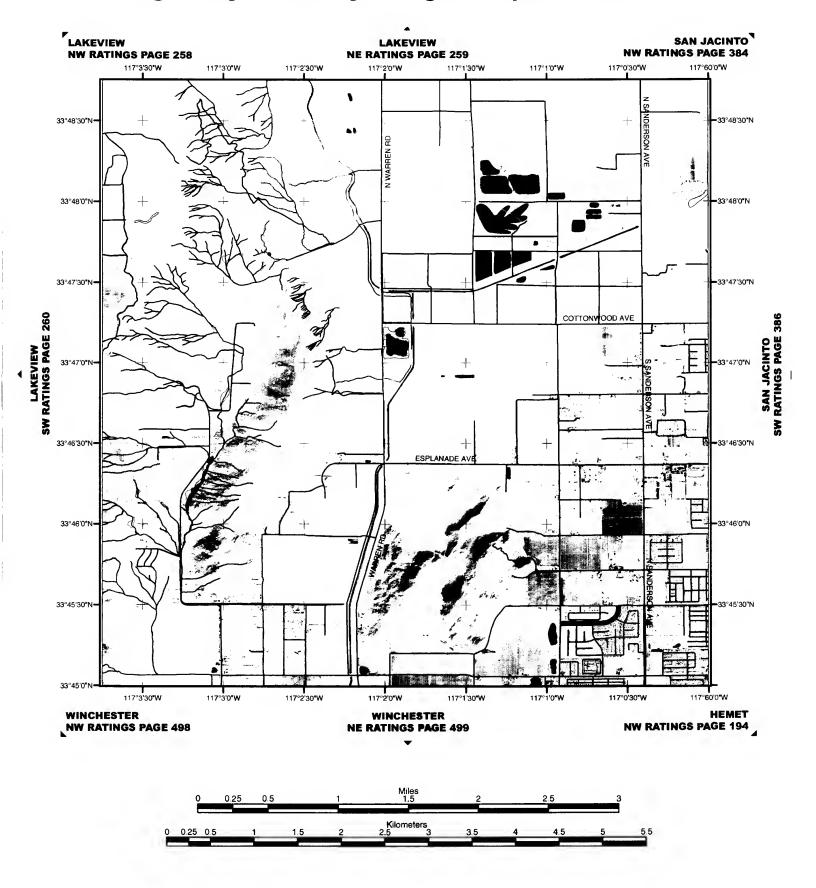
### Lakeview North East Quarter-Quadrangle Regulatory Probability Ratings for Aquatic Resources



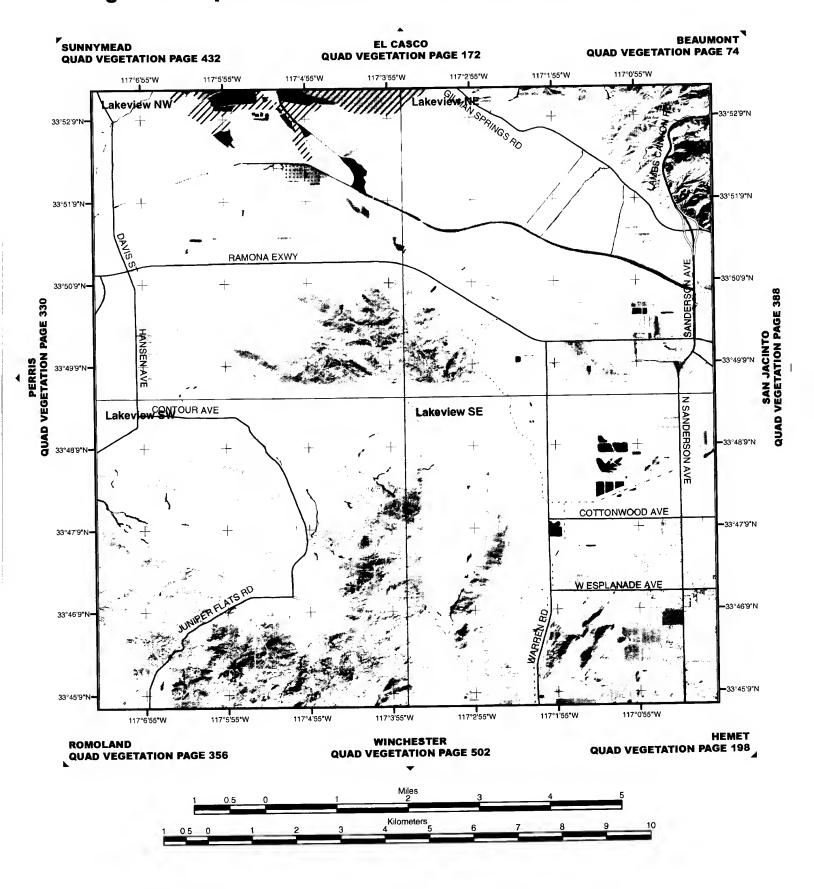
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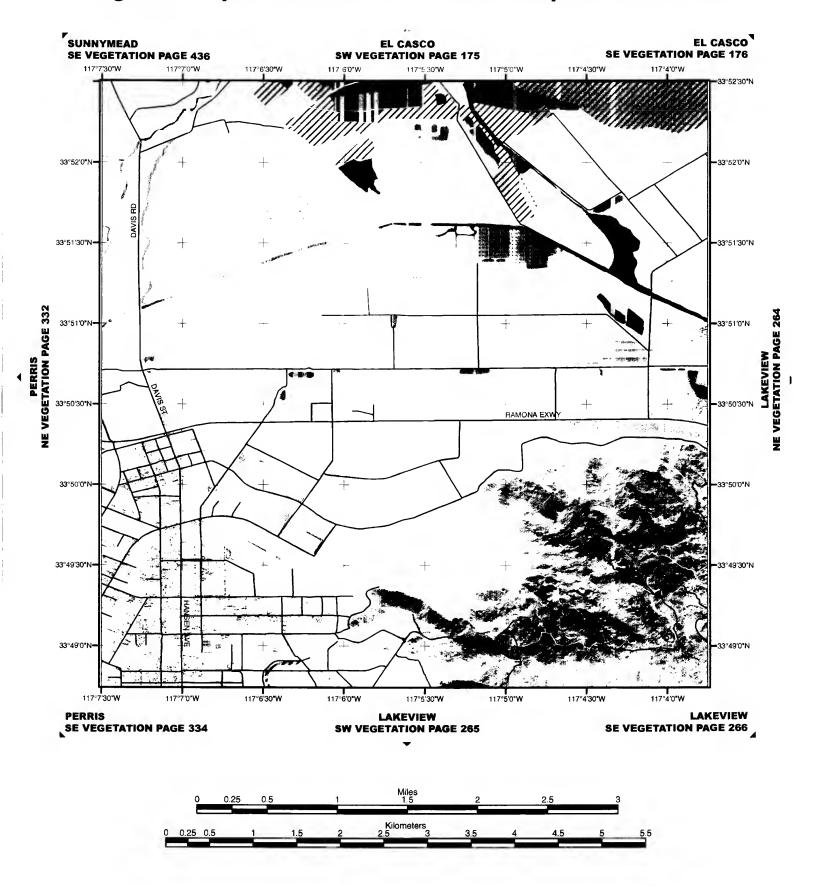
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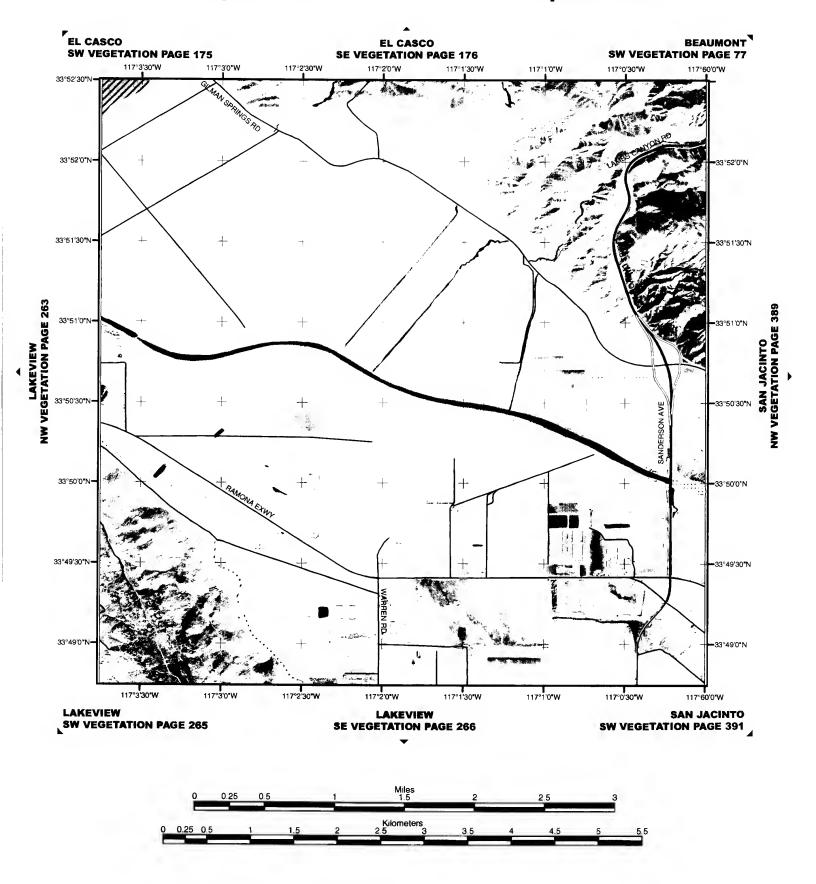
### Lakeview Quadrangle Vegetation Species Association Units for Aquatic Resources



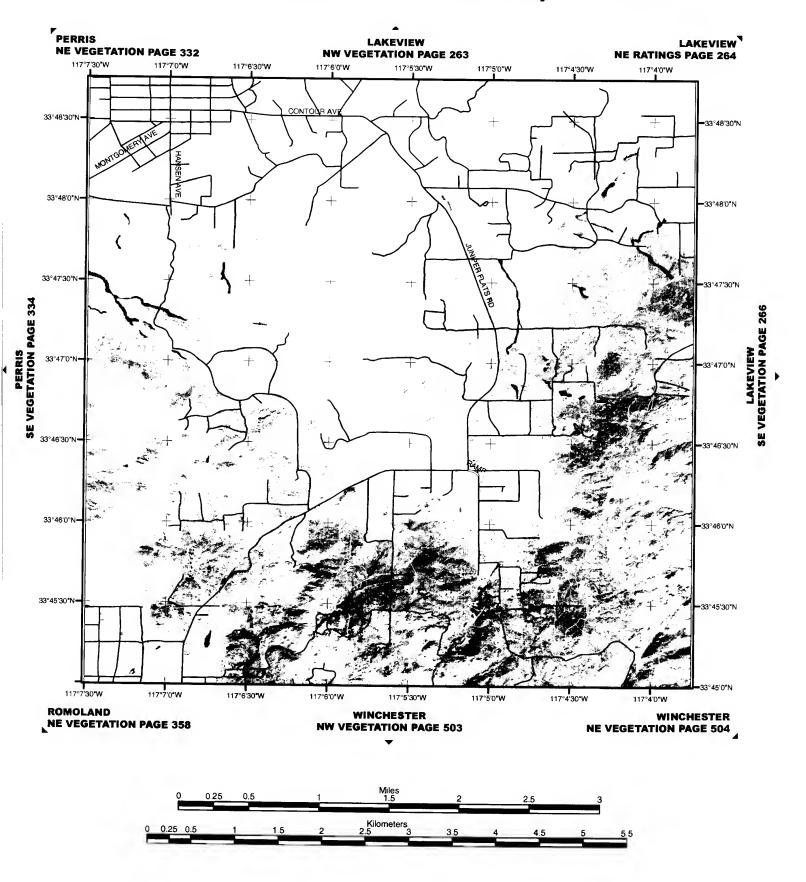
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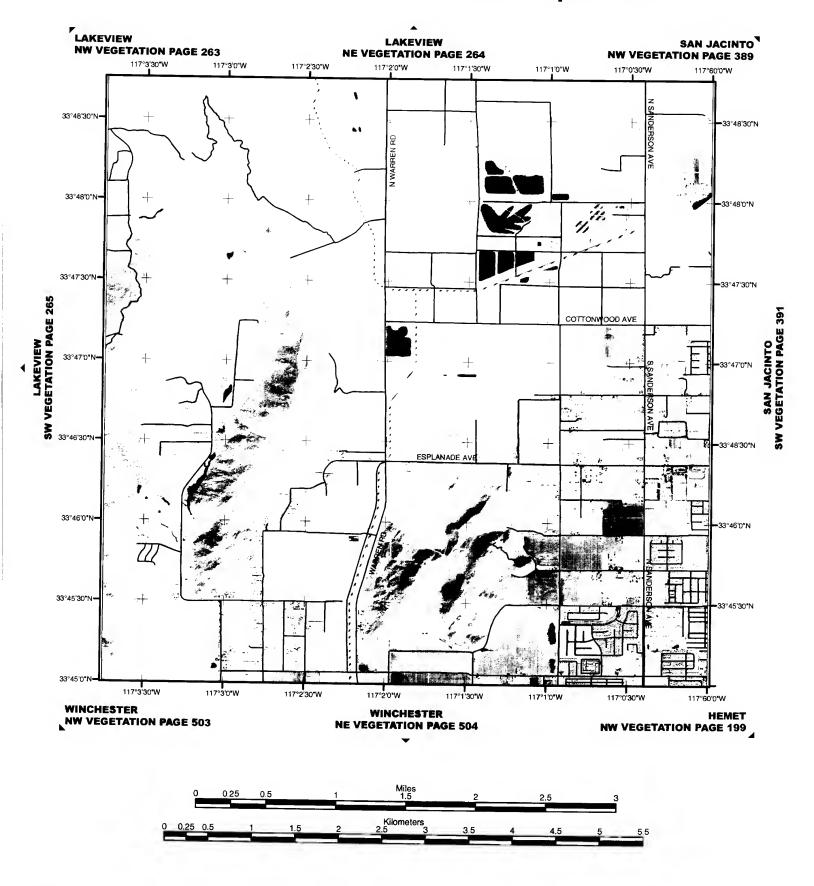
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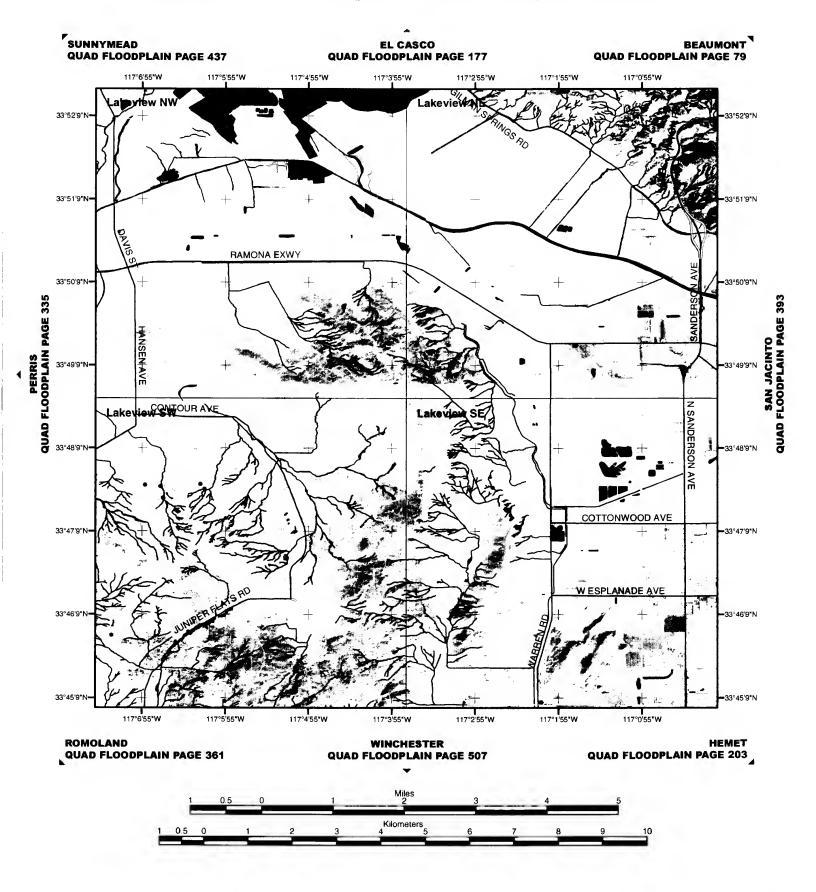
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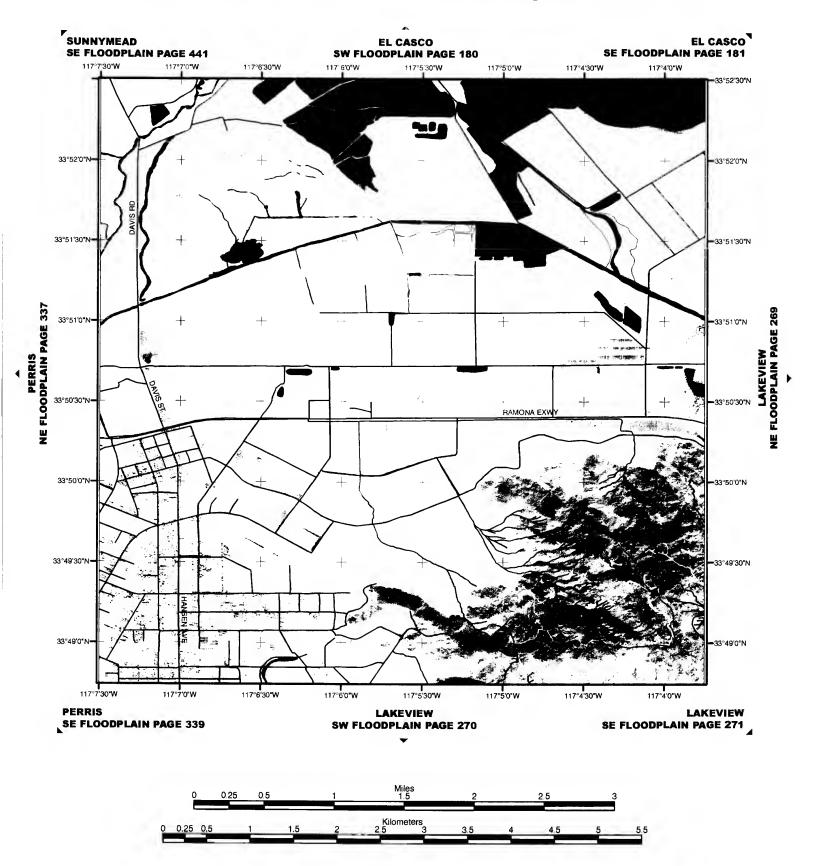
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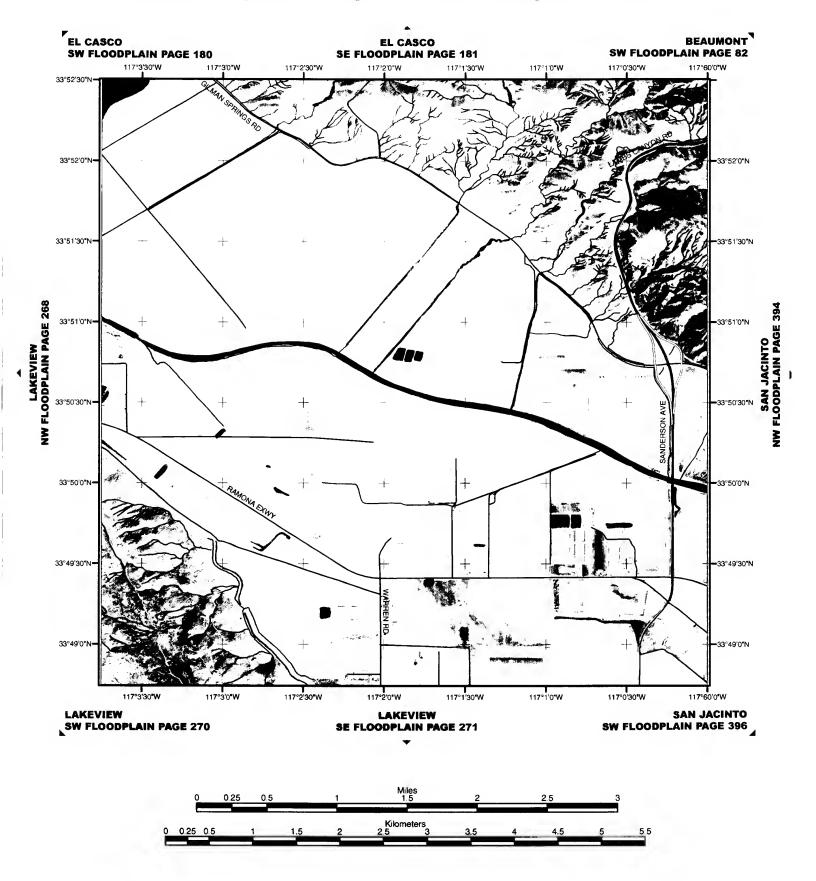
## Lakeview Quadrangle Hydrogeomorphic Floodplain Units for Aquatic Resources



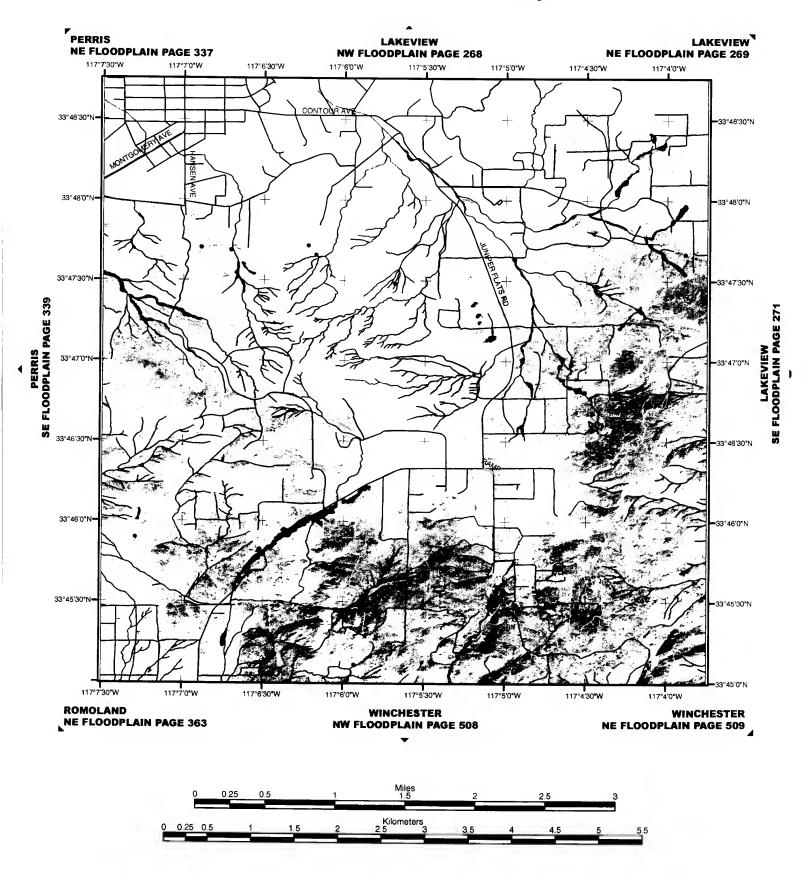
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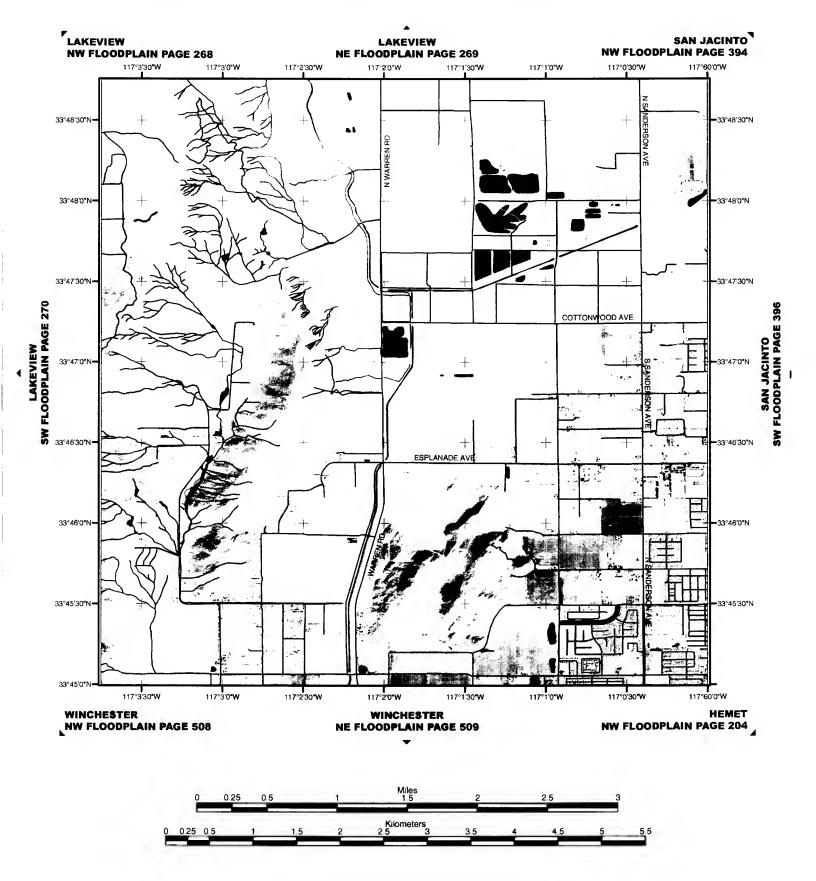
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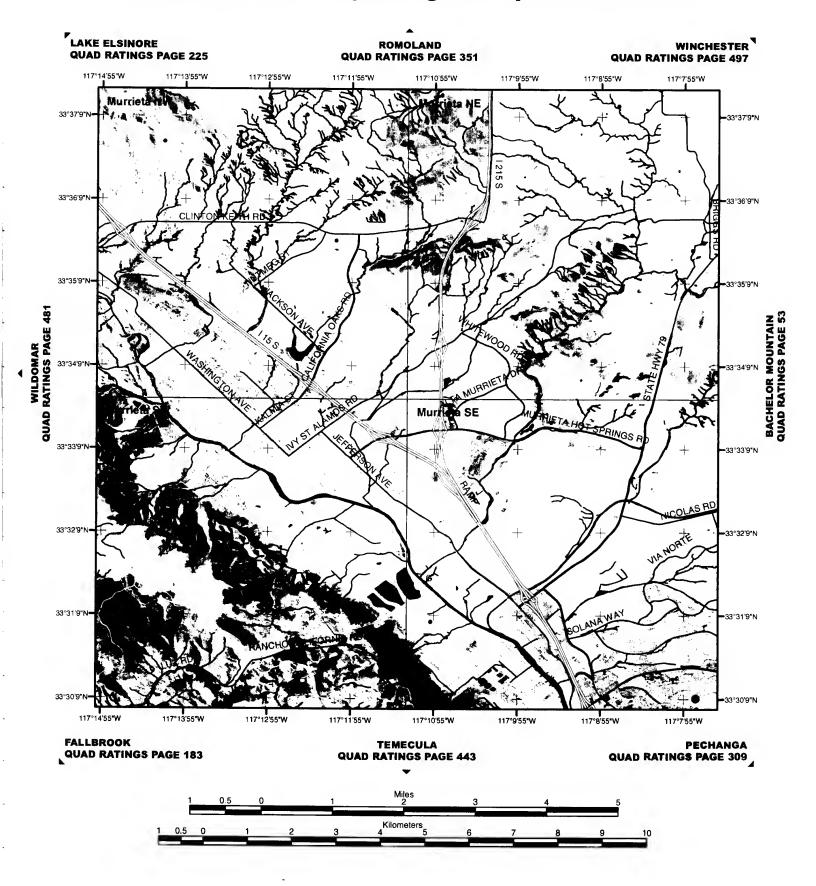
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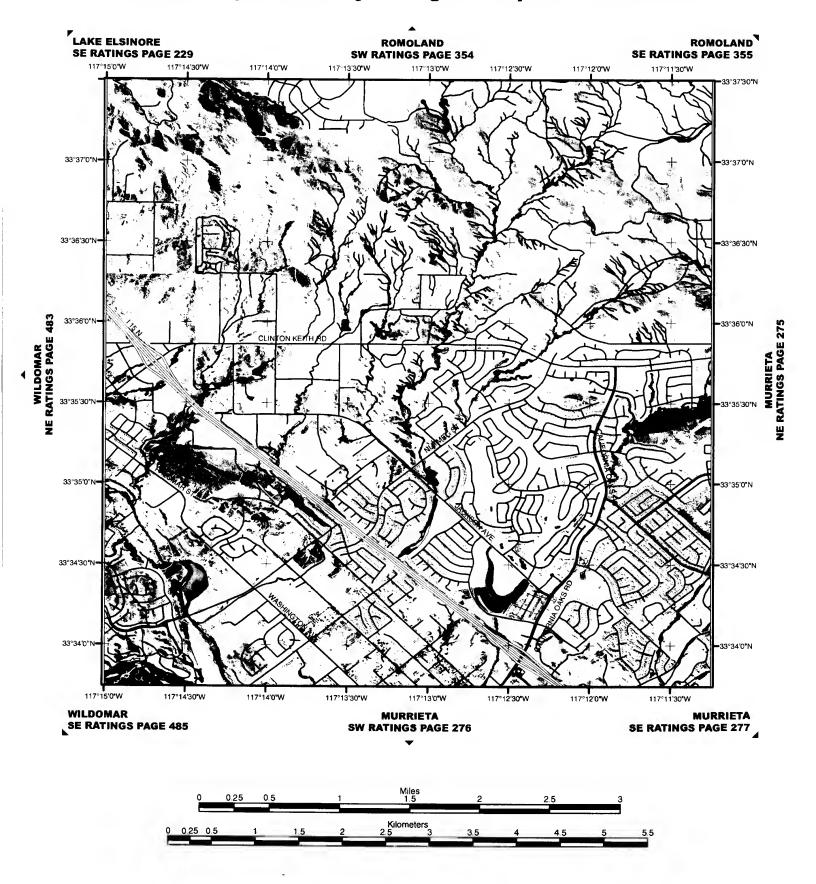
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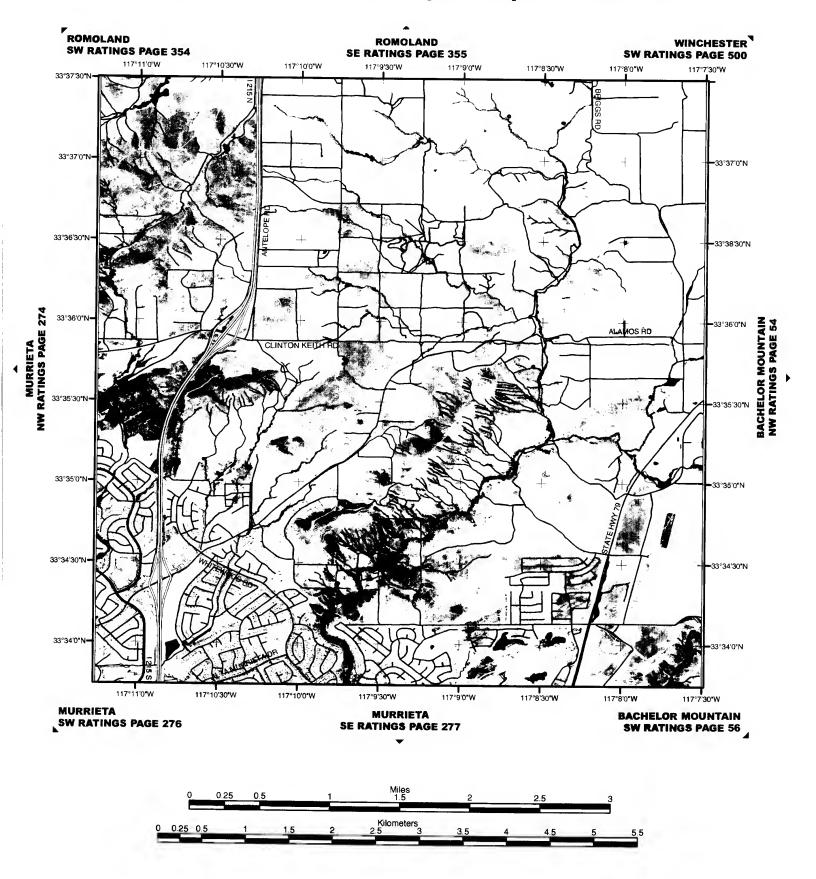
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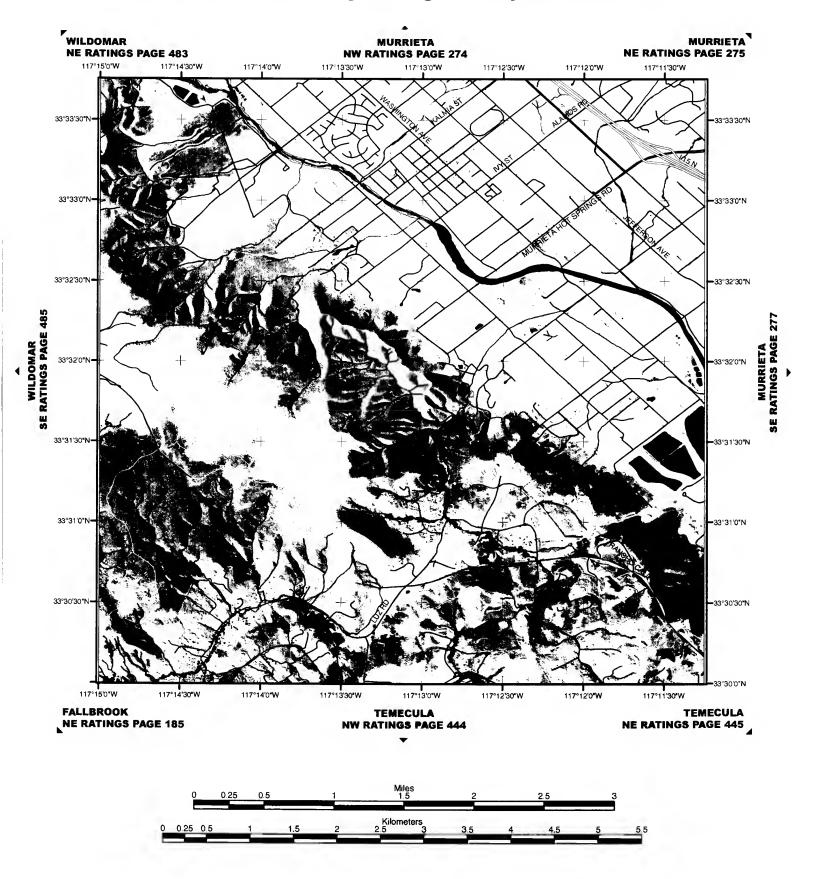
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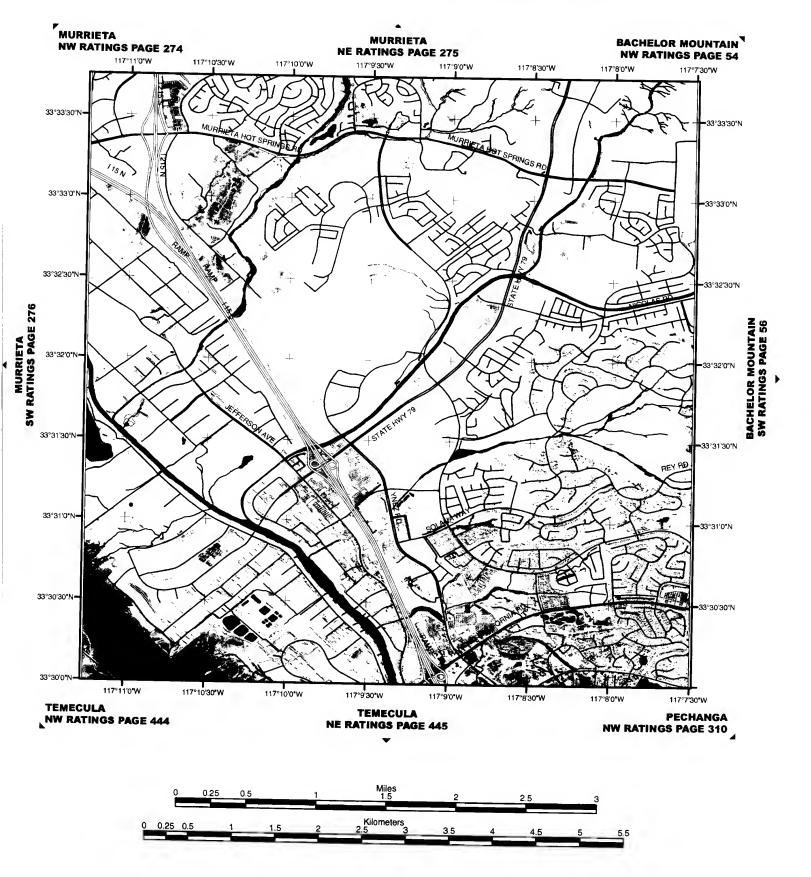
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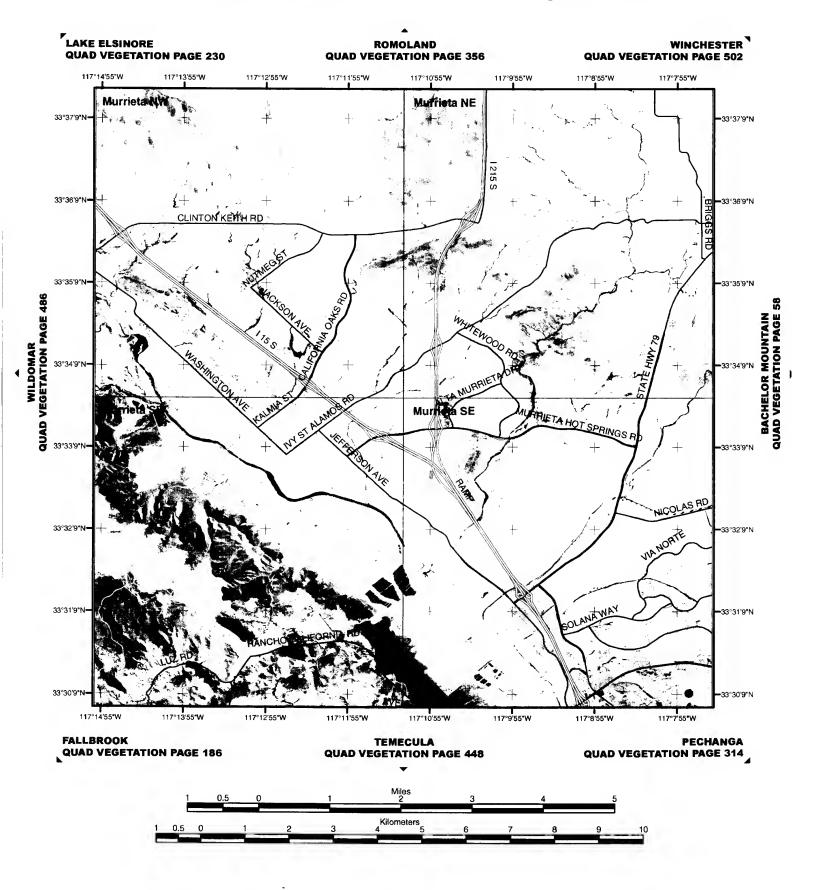
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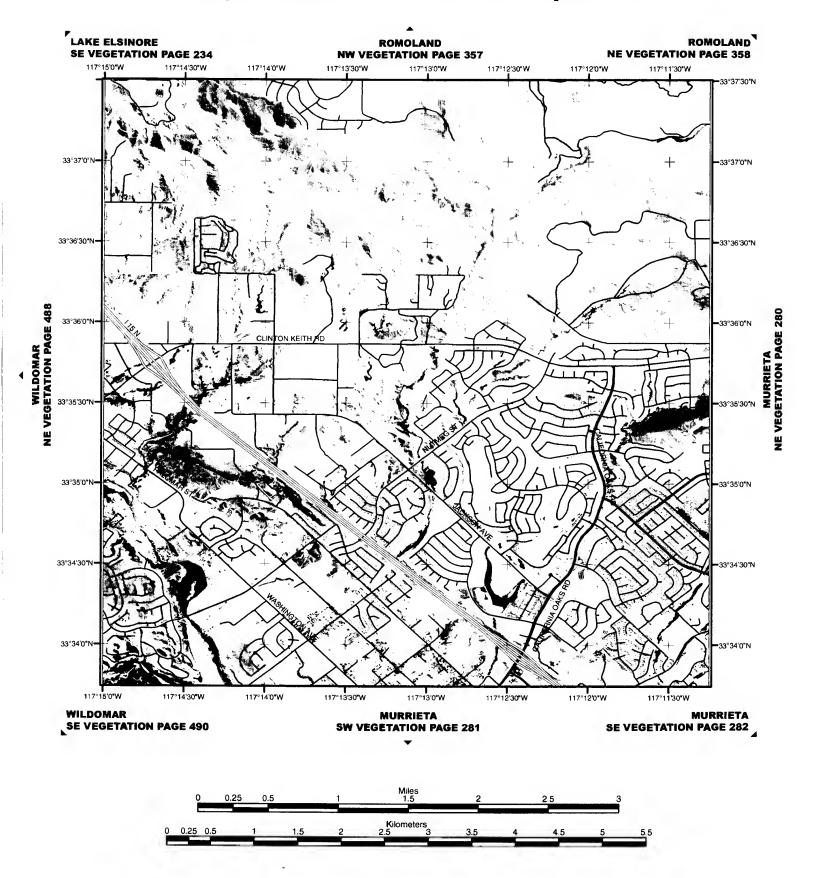
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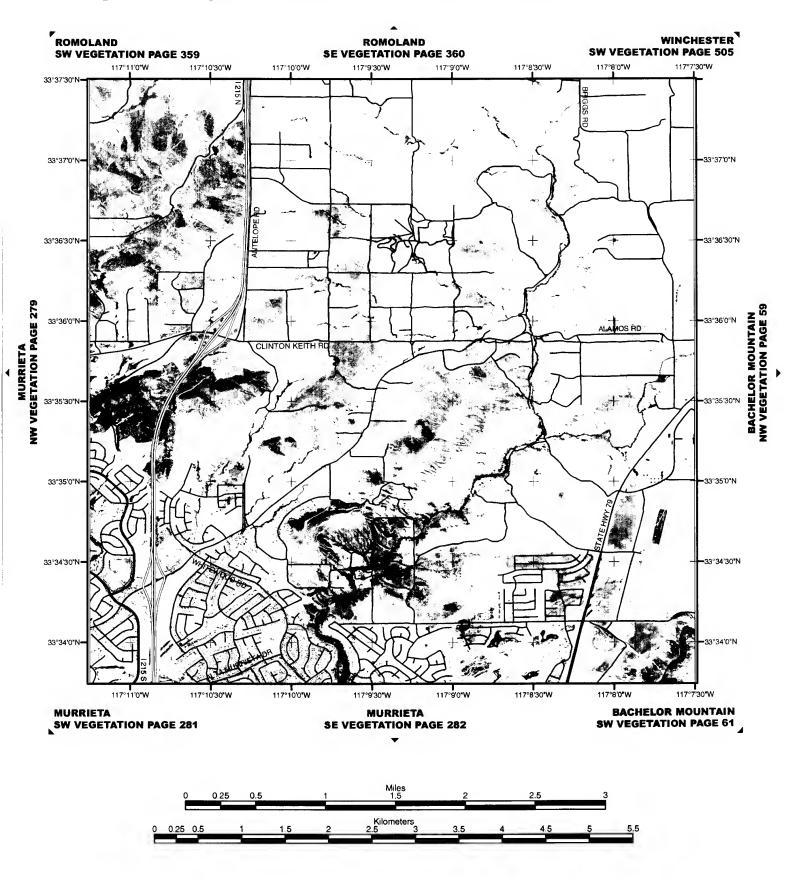
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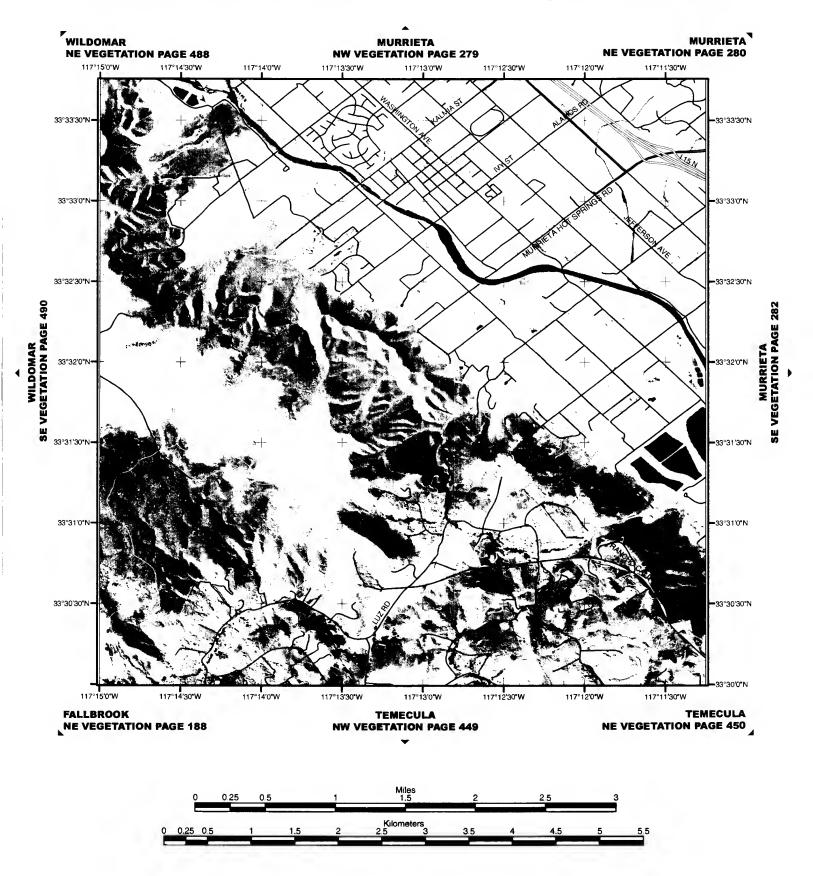
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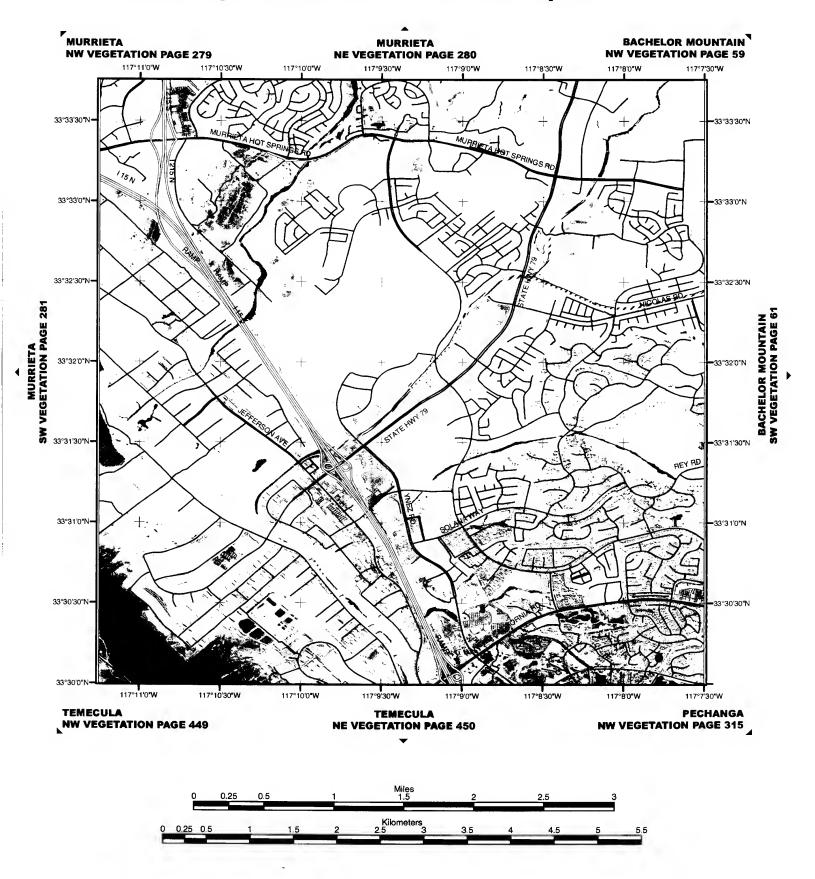
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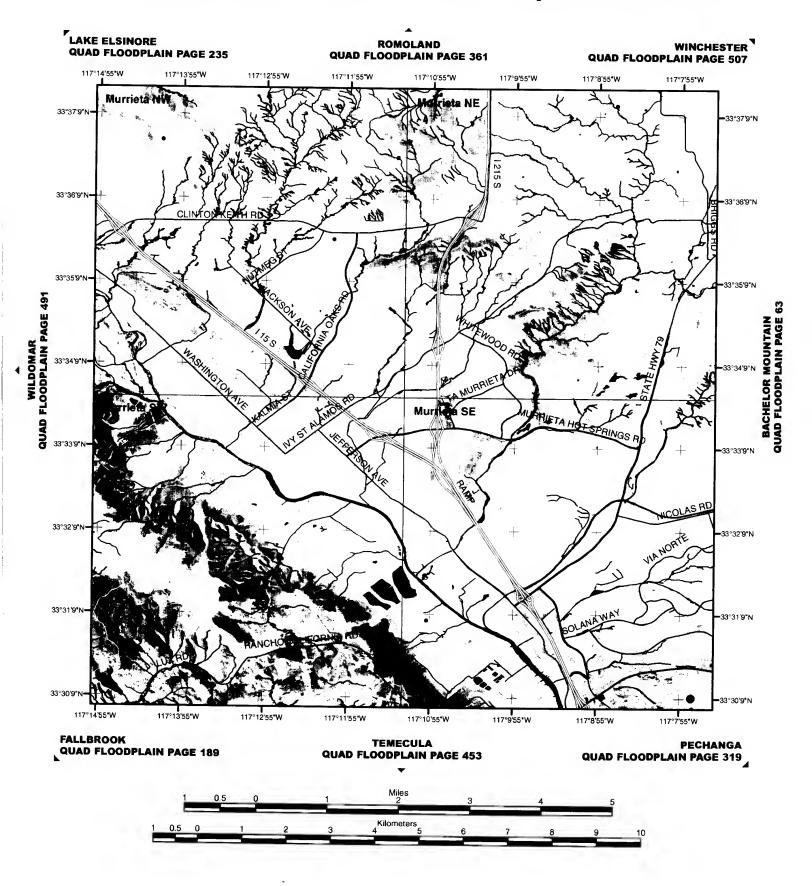
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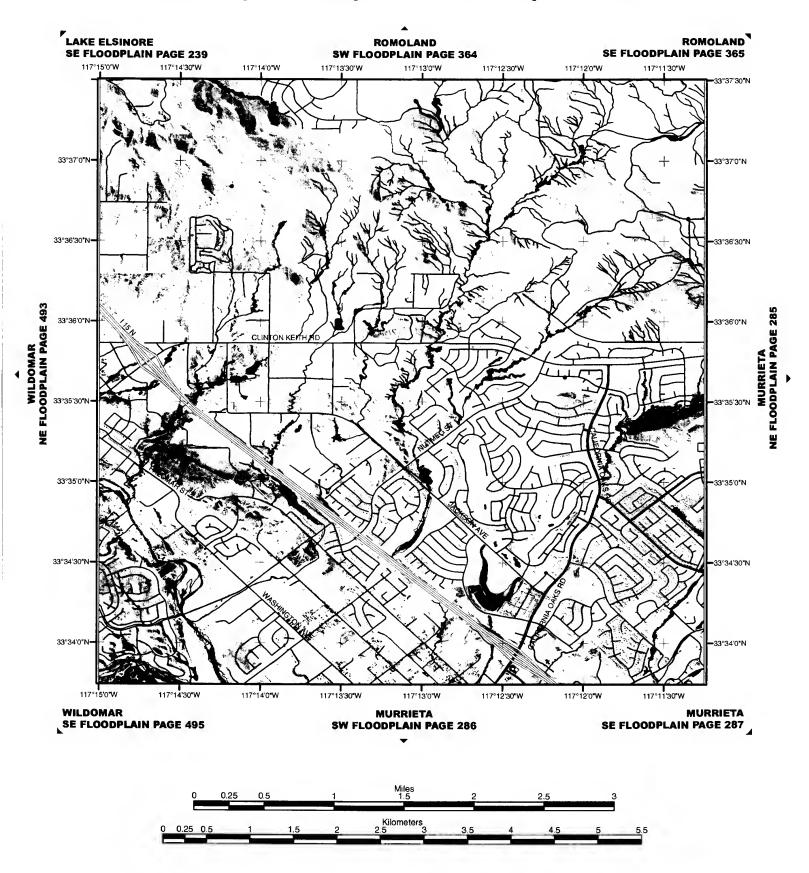
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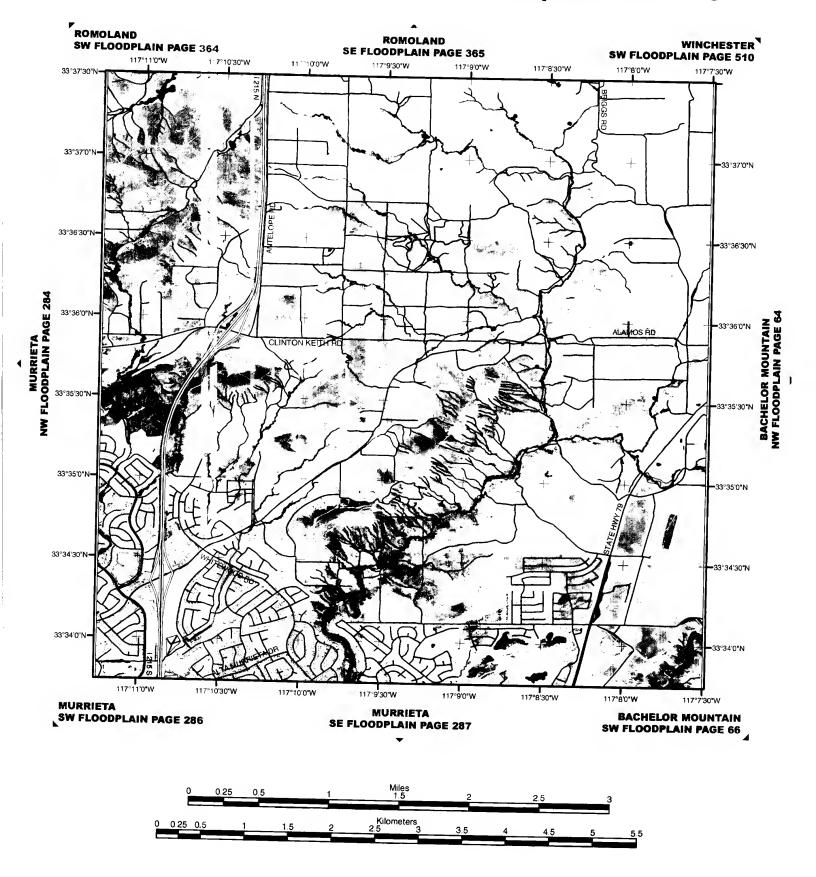
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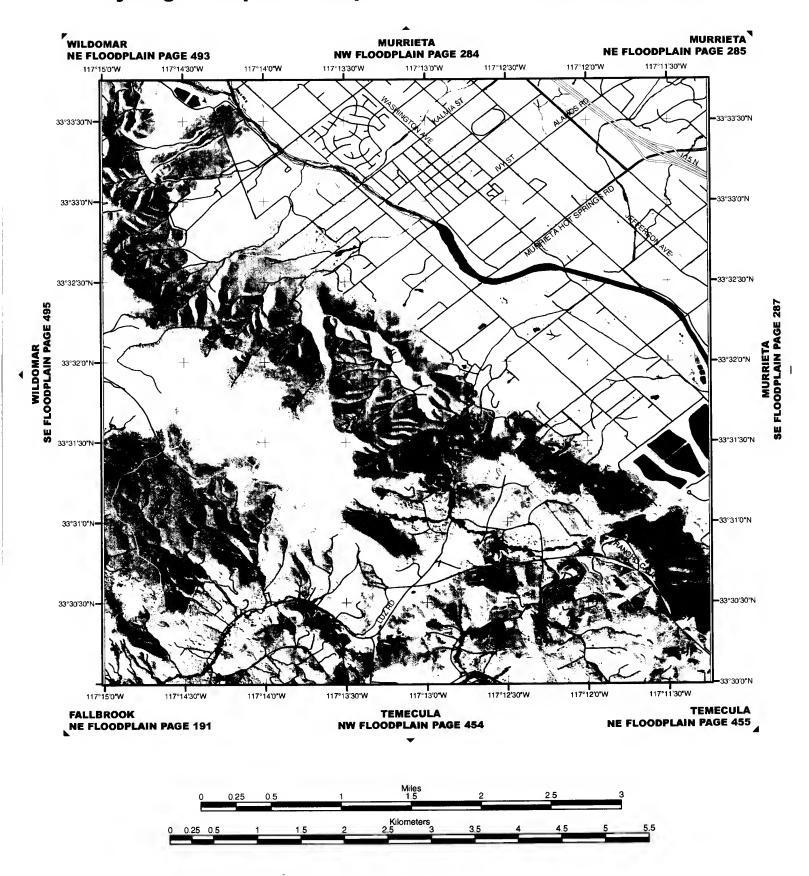
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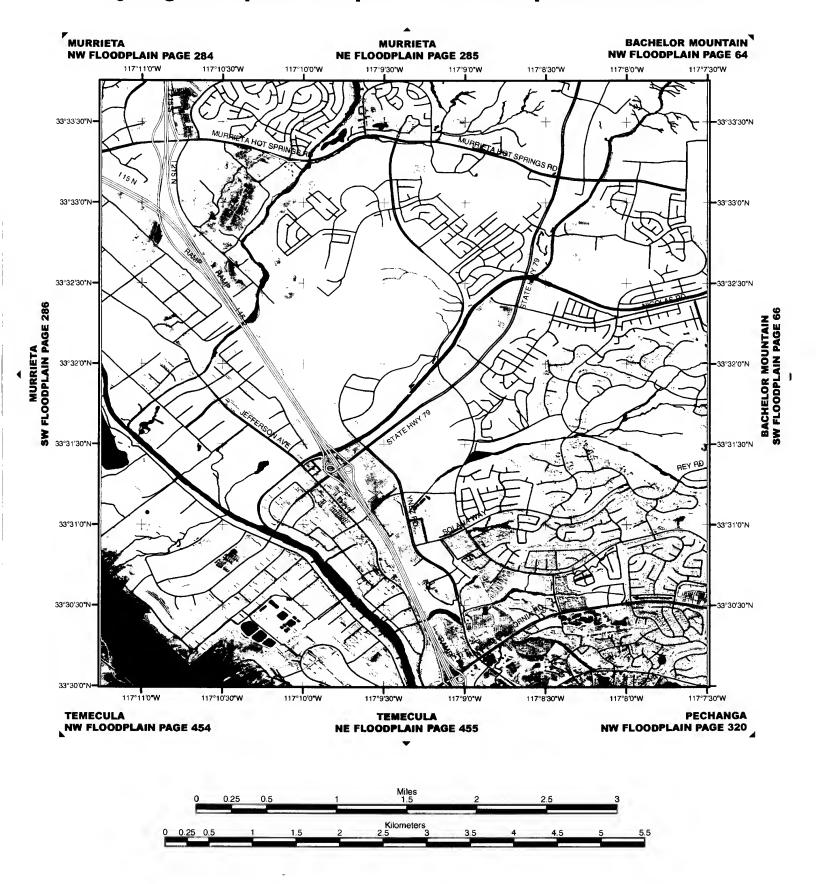
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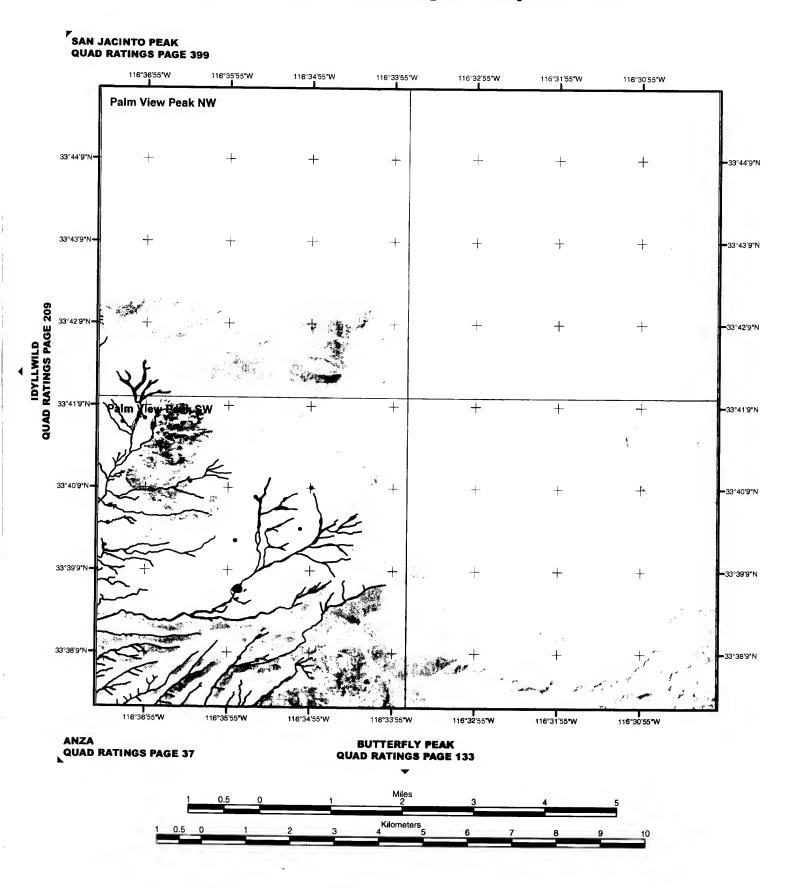
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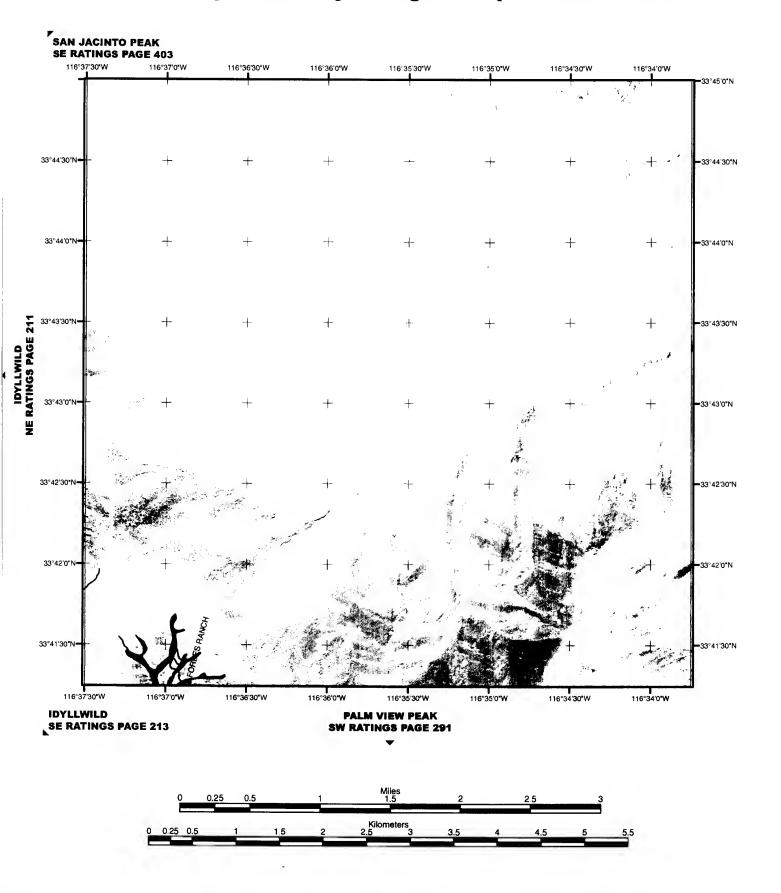
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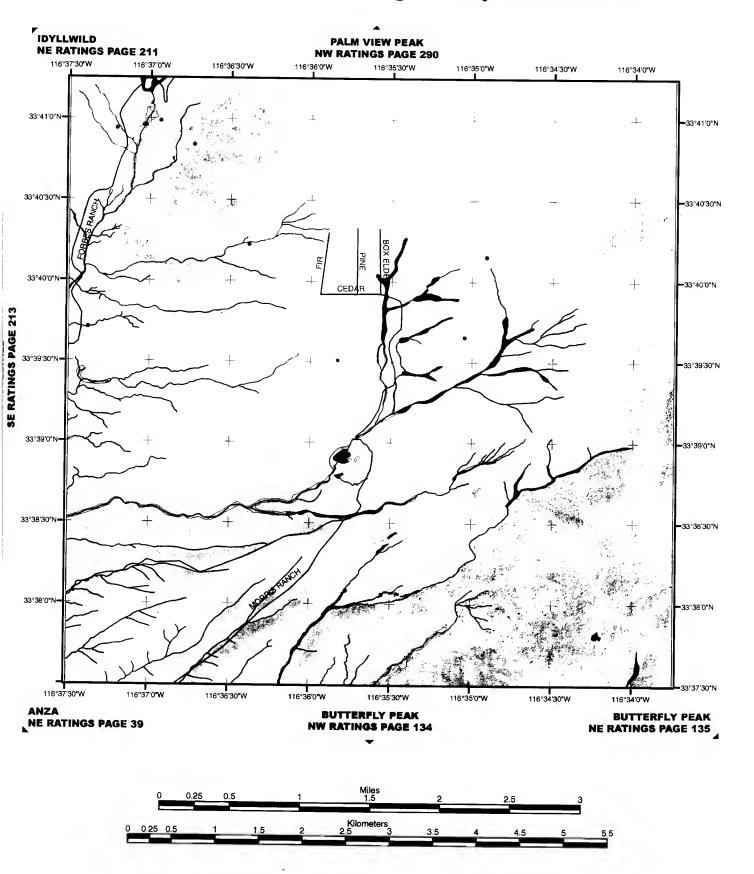
### Palm View Peak Quadrangle Regulatory Probability Ratings for Aquatic Resources



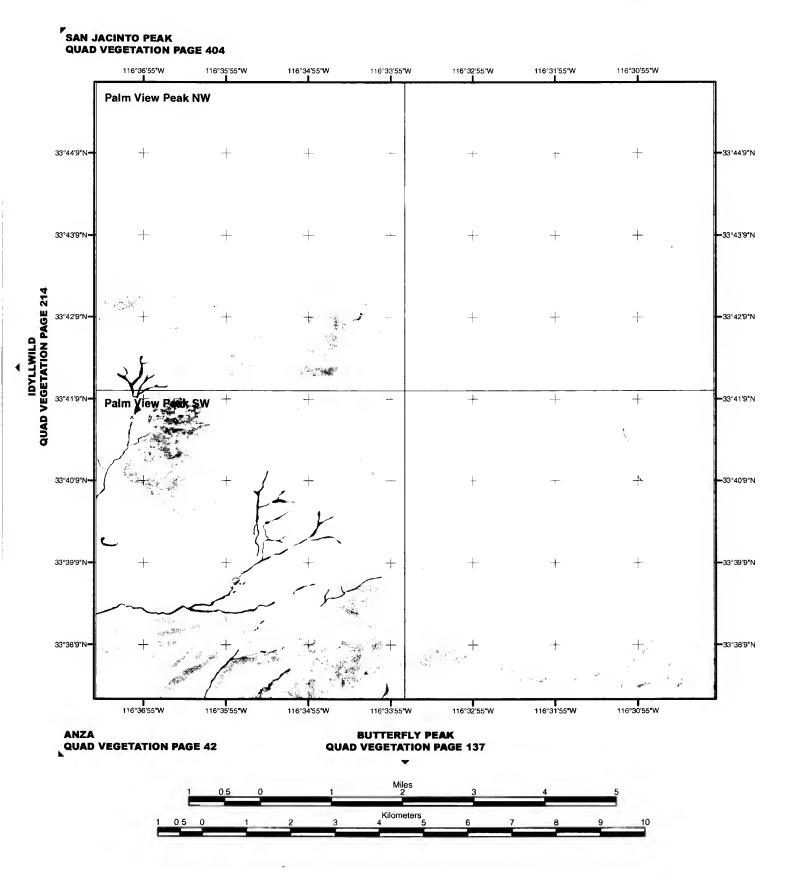
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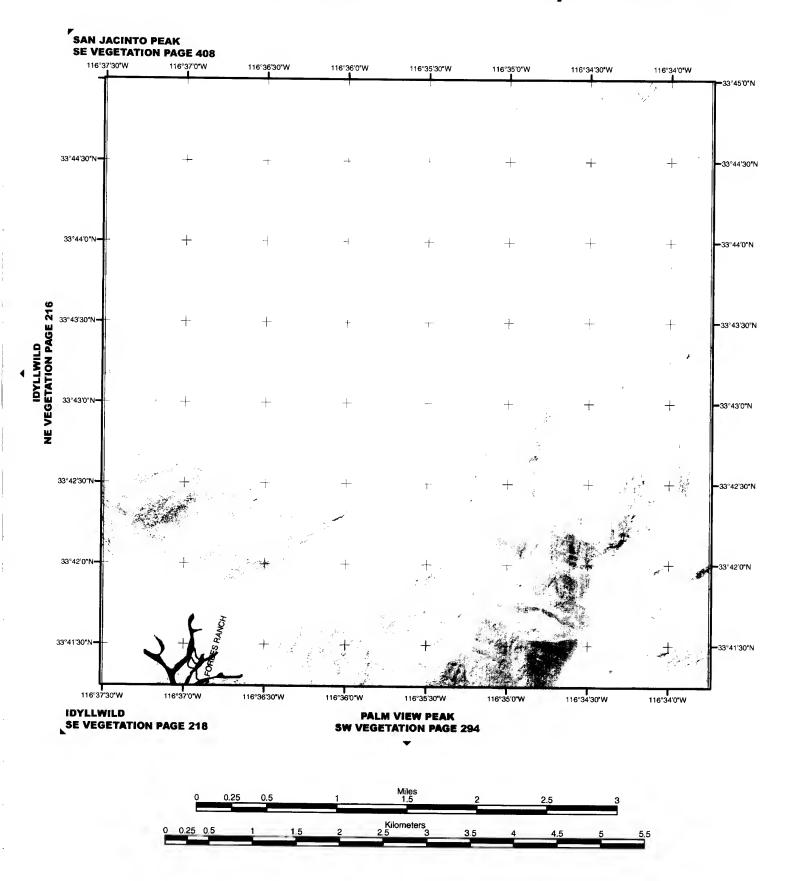
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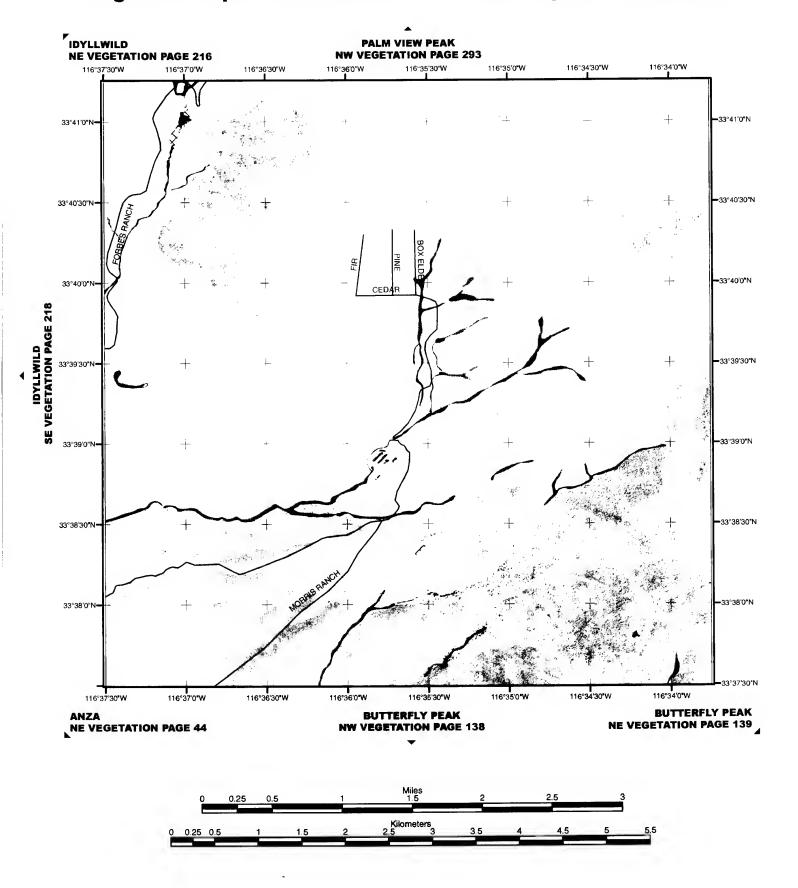
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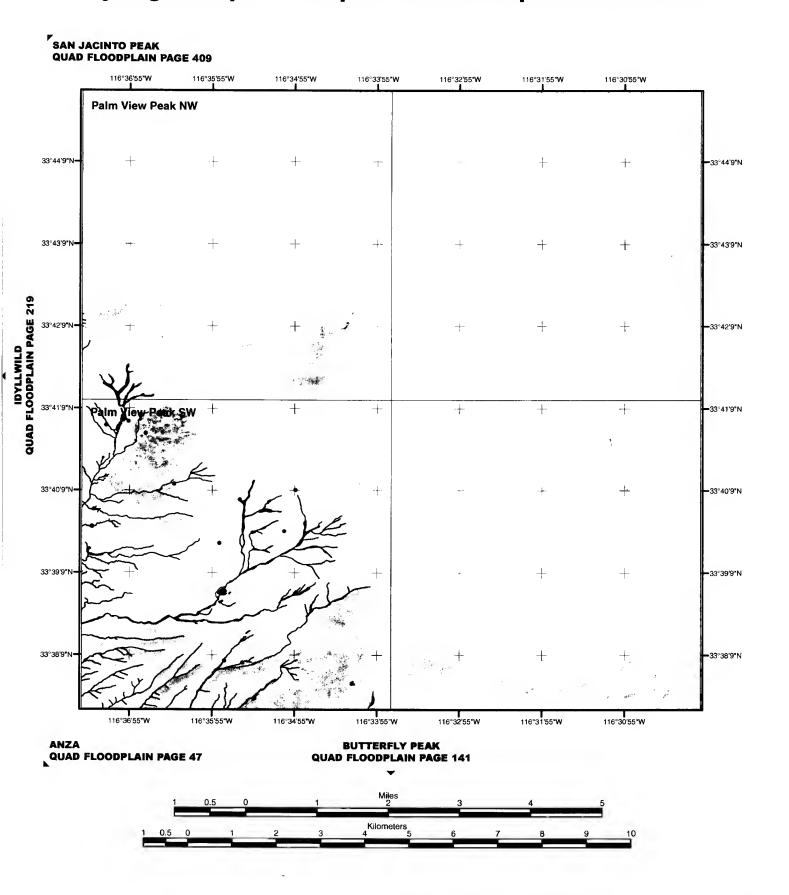
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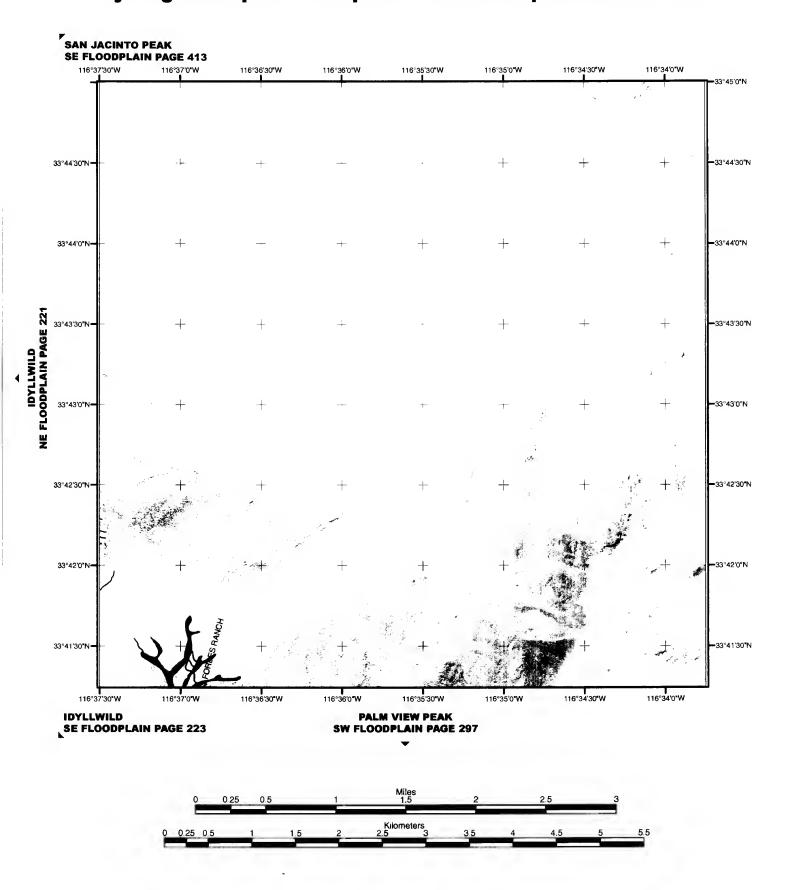
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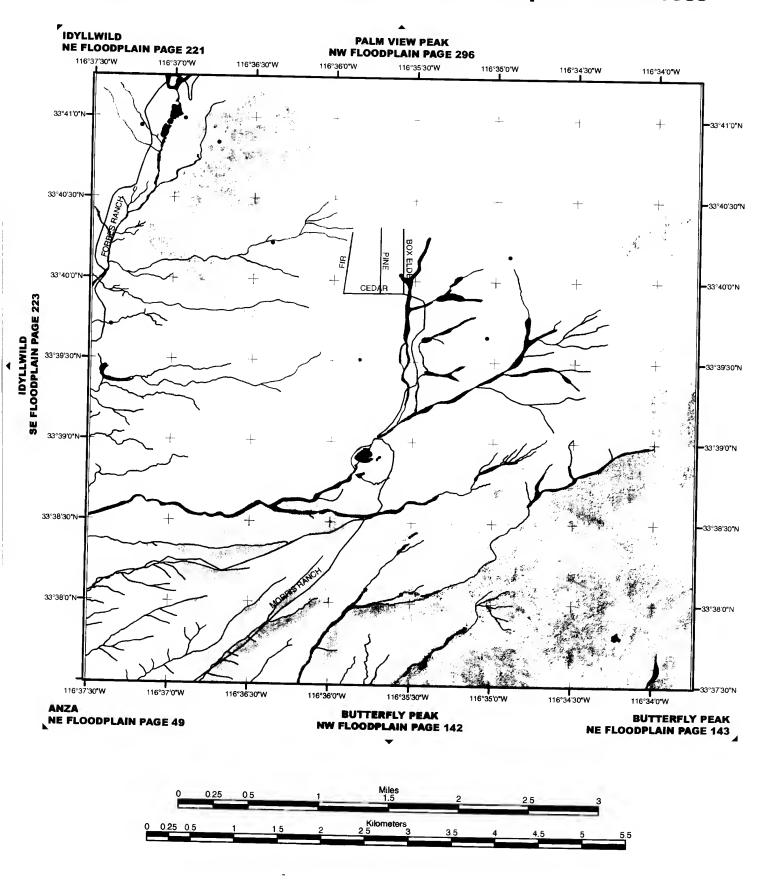
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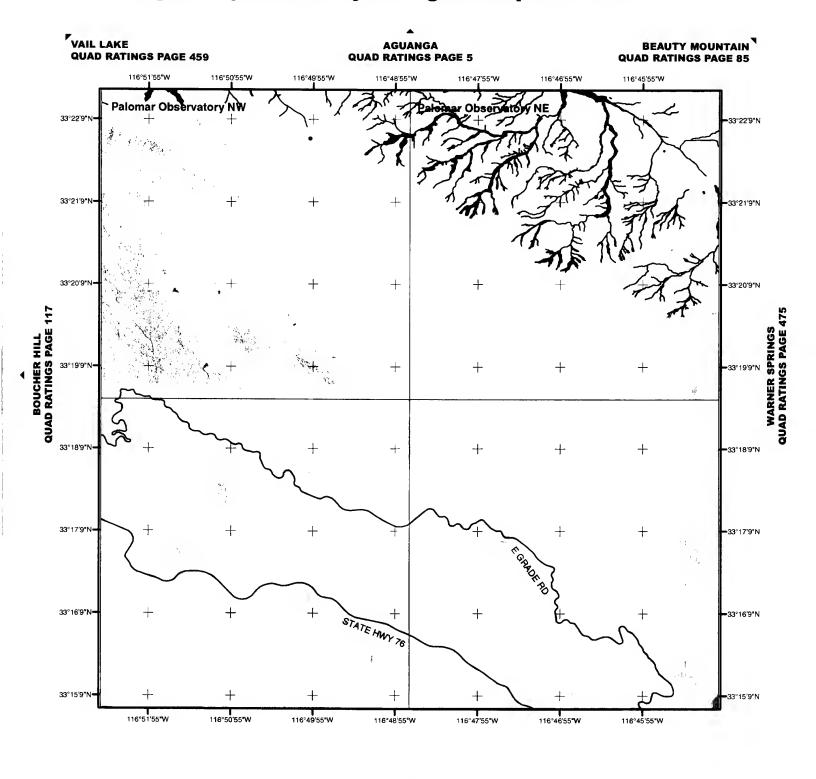
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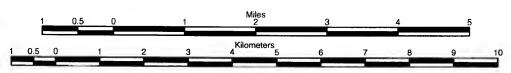


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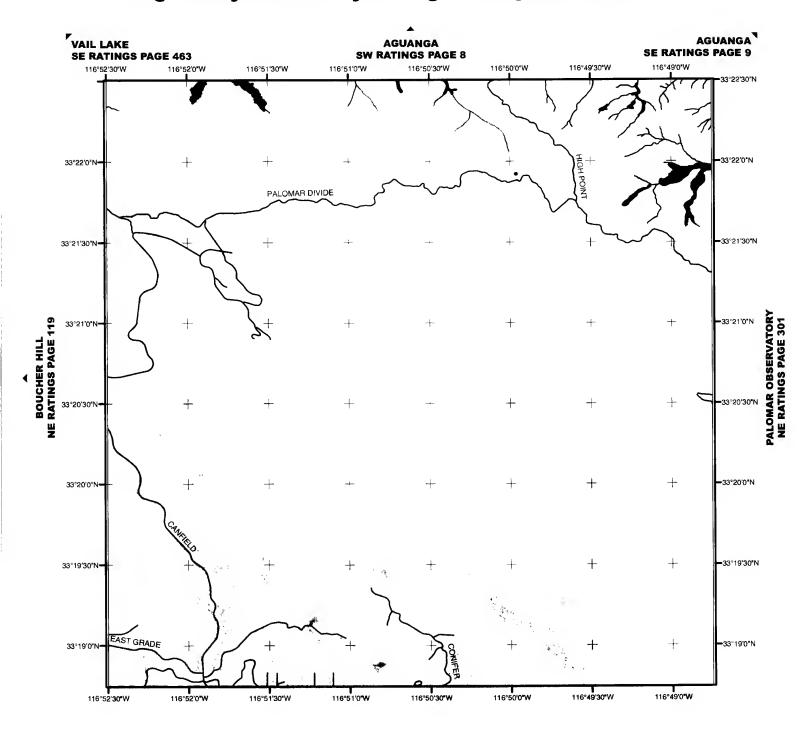


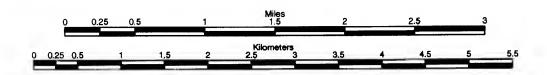
#### Palomar Observatory Quadrangle Regulatory Probability Ratings for Aquatic Resources



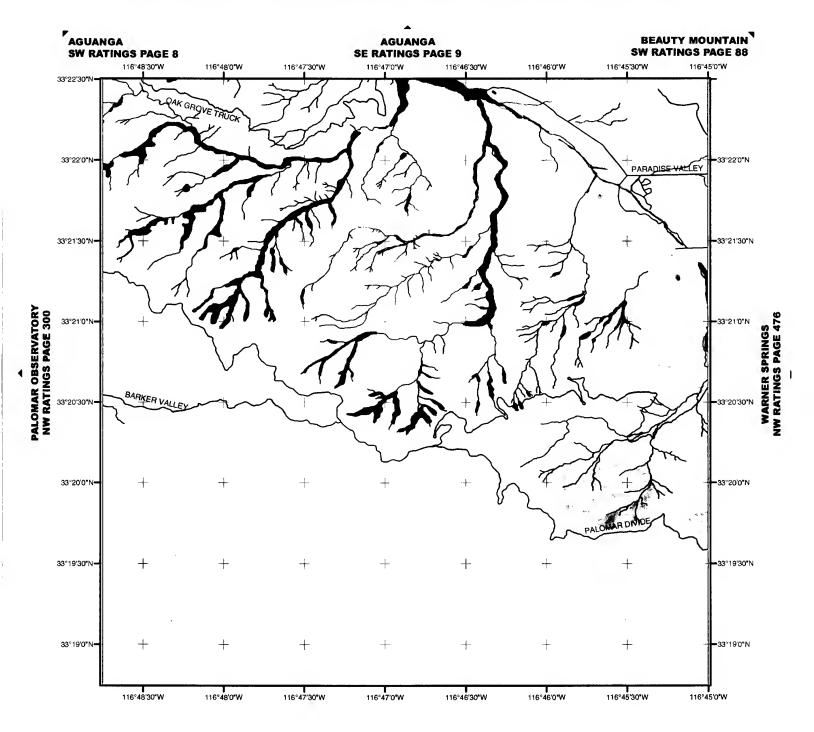


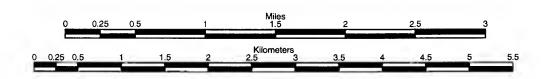
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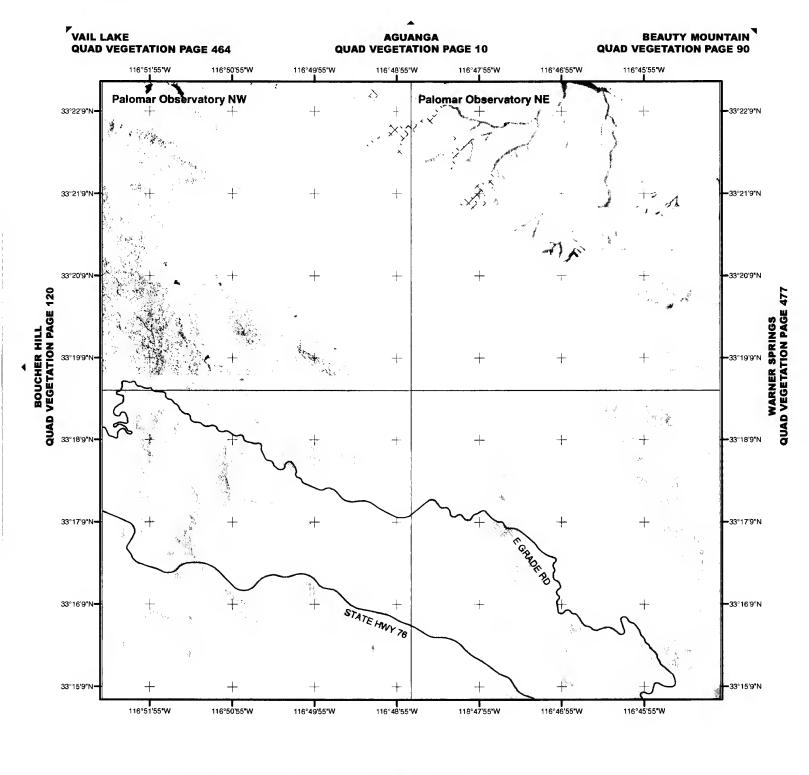


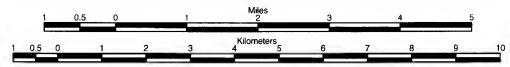
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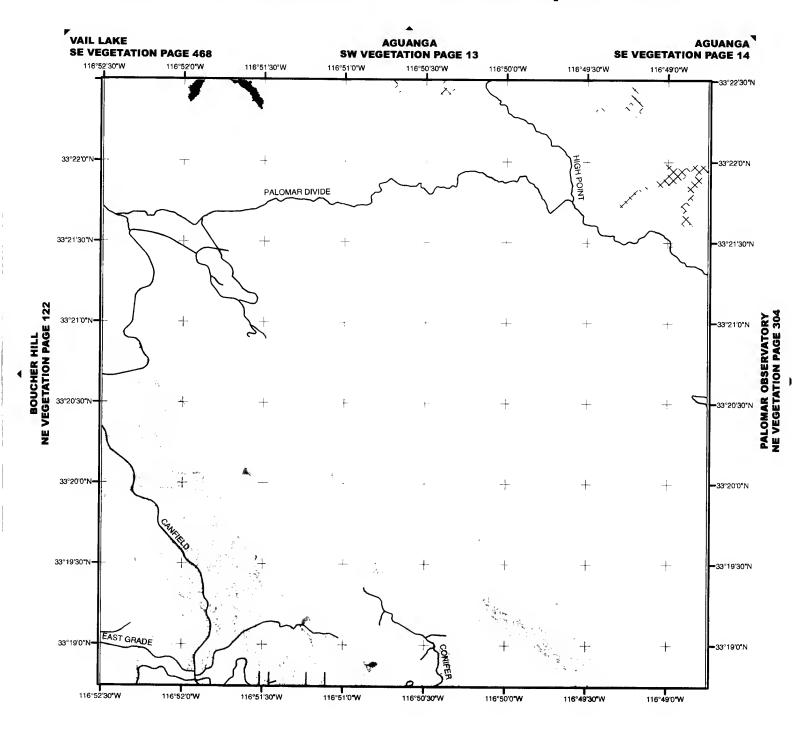


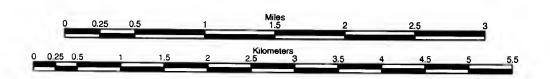
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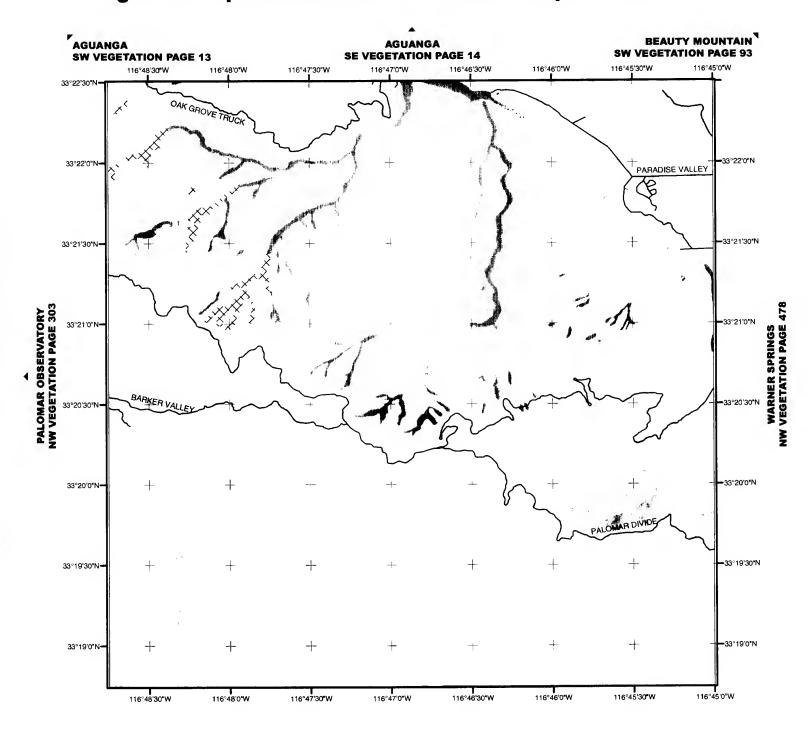


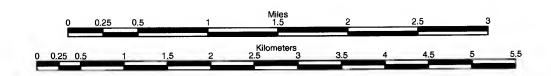
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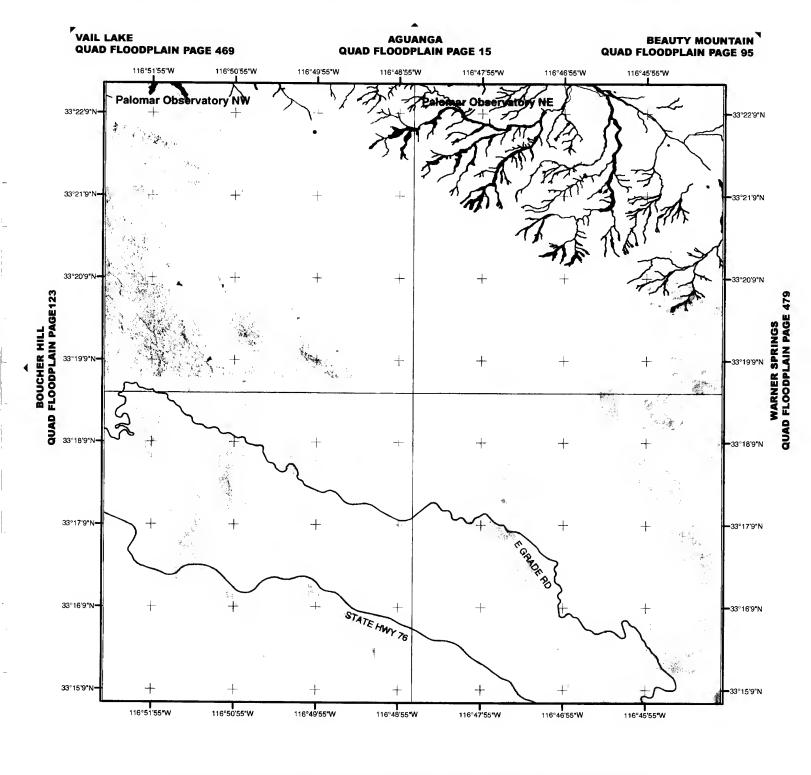


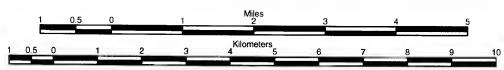
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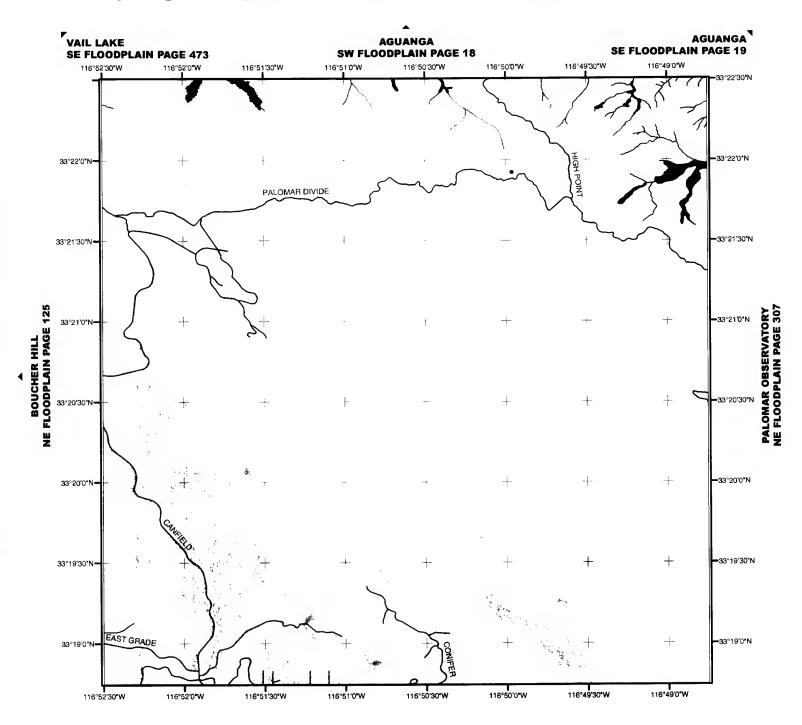


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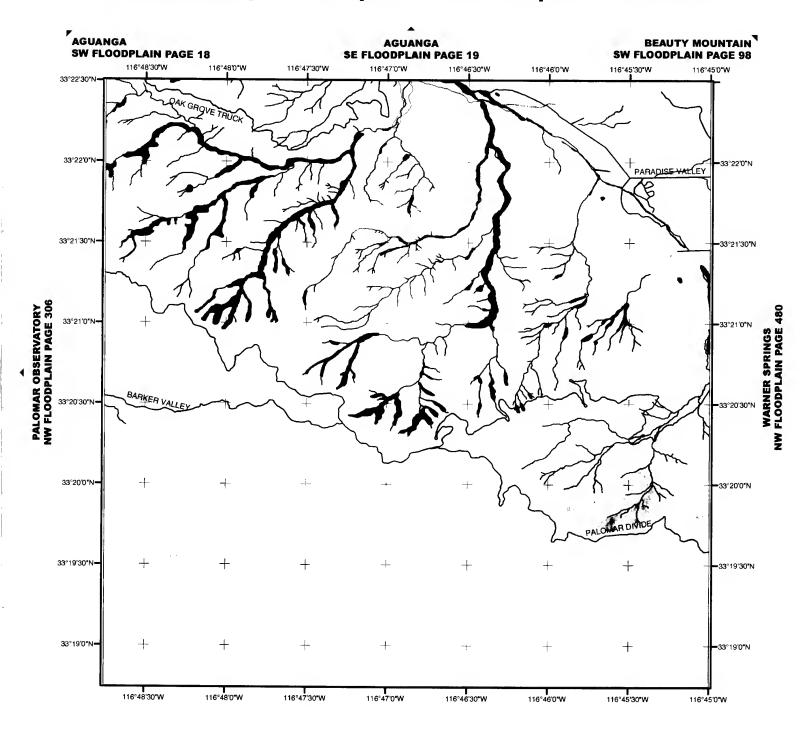


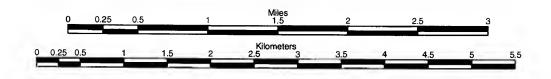


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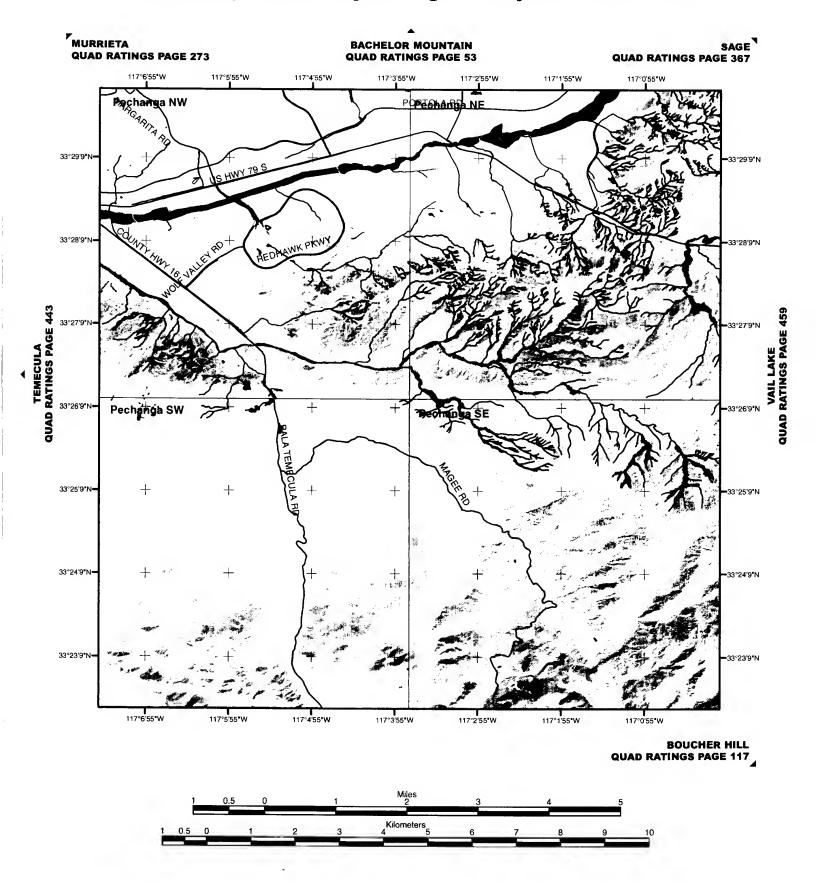


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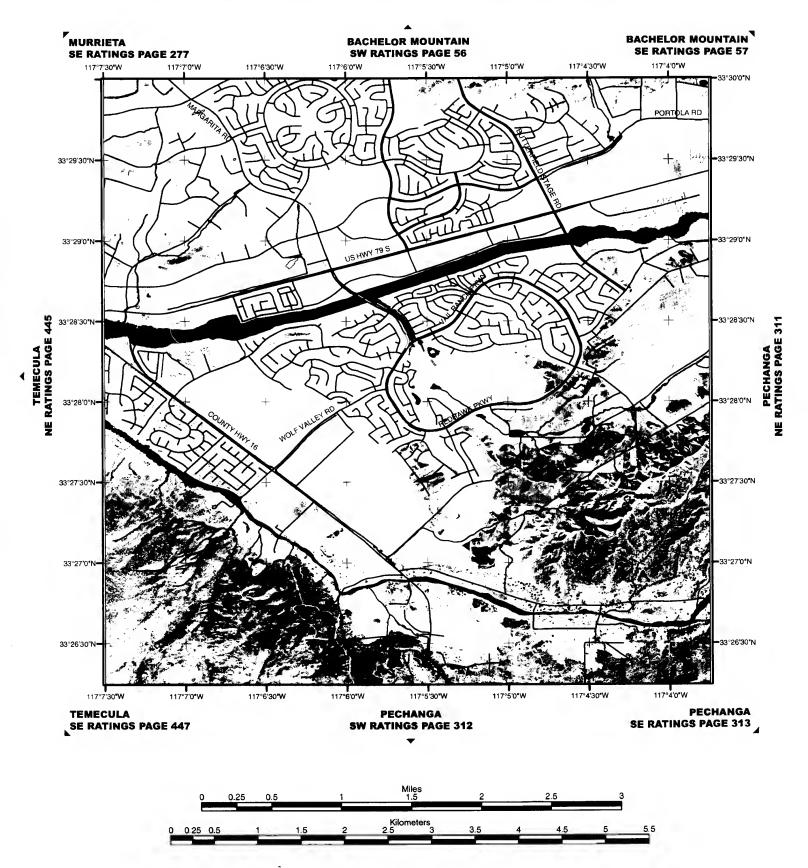




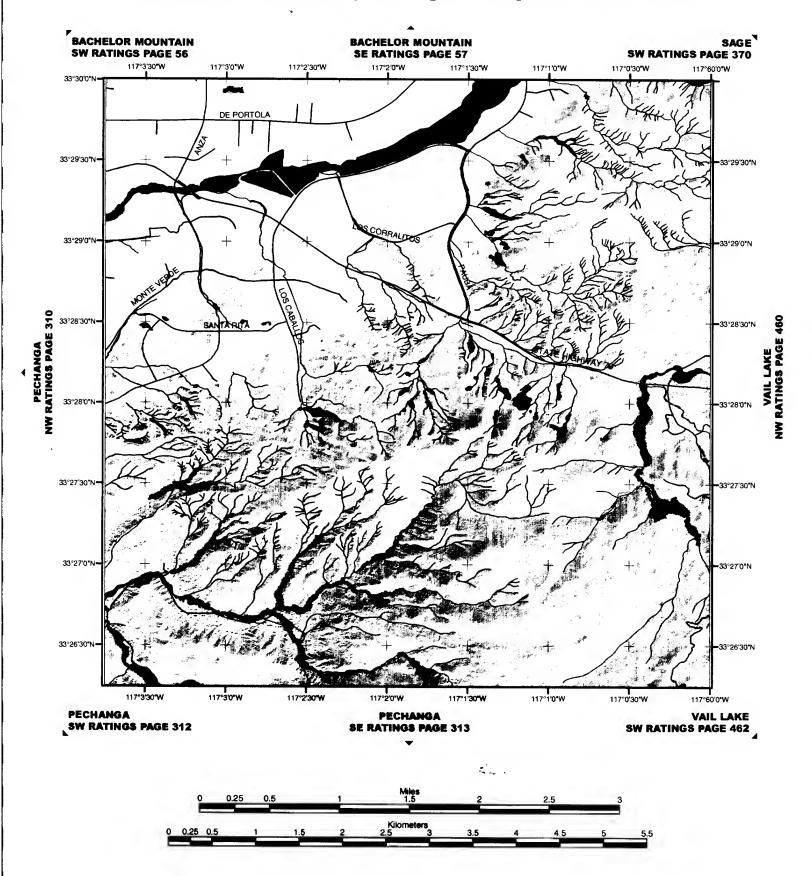
### Pechanga Quadrangle Regulatory Probability Ratings for Aquatic Resources



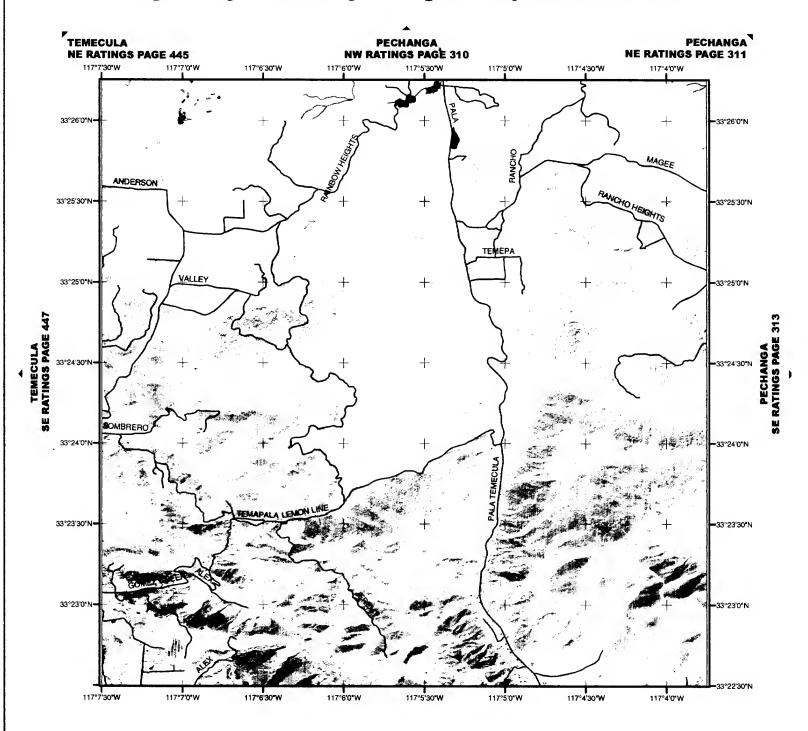
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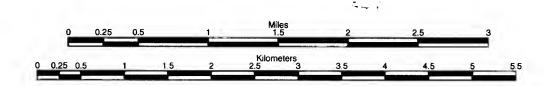


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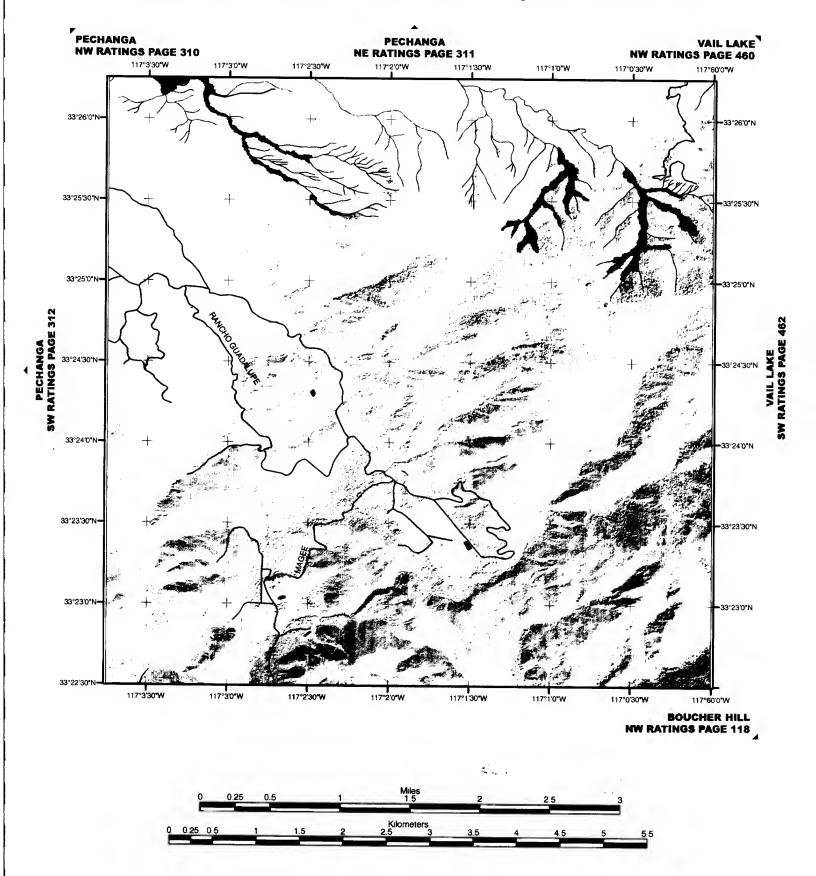


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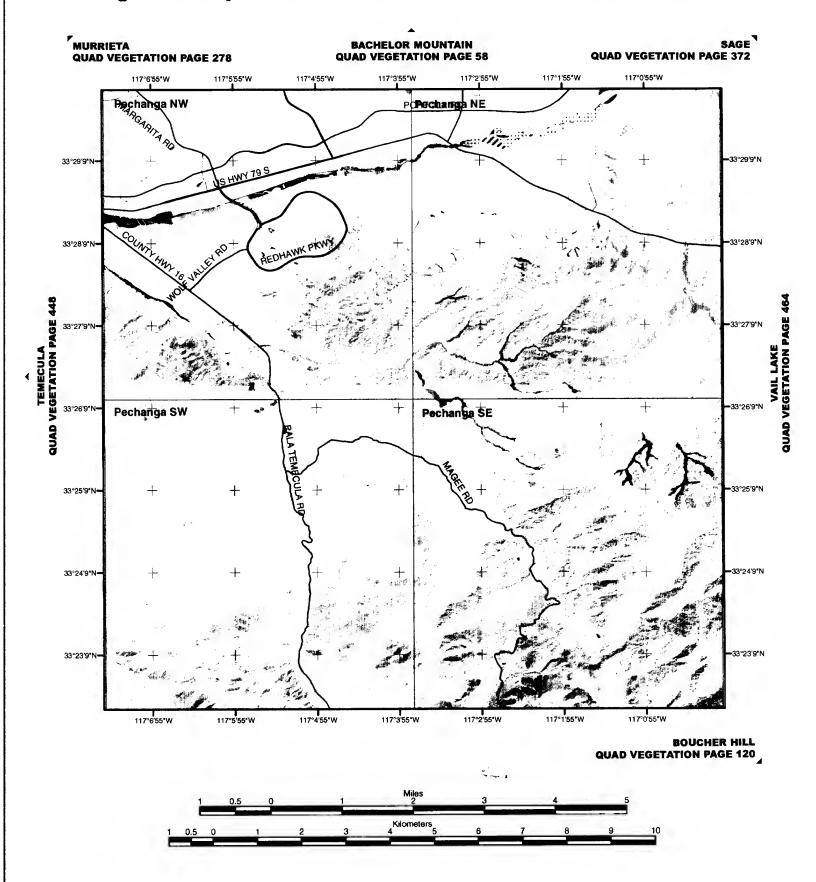




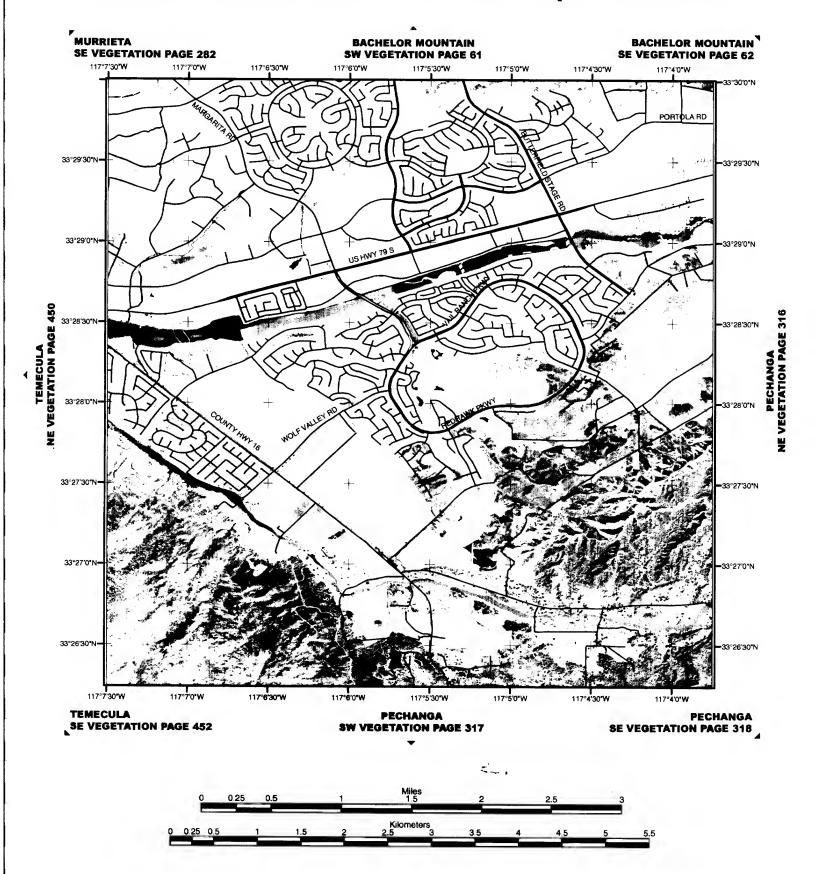
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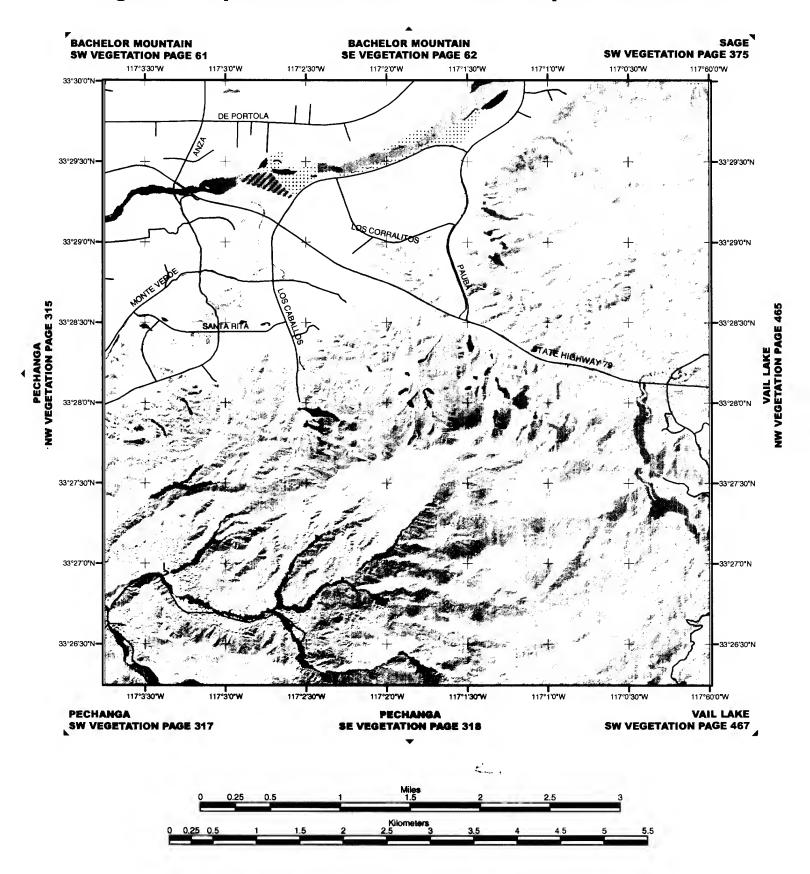
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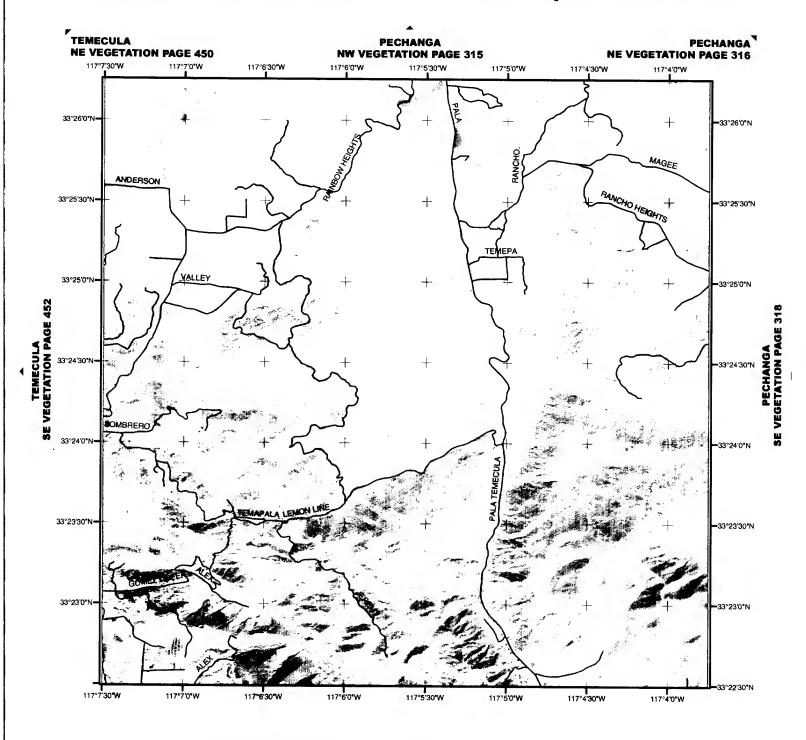
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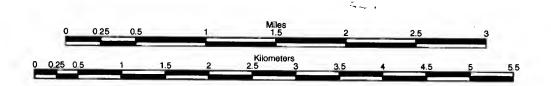


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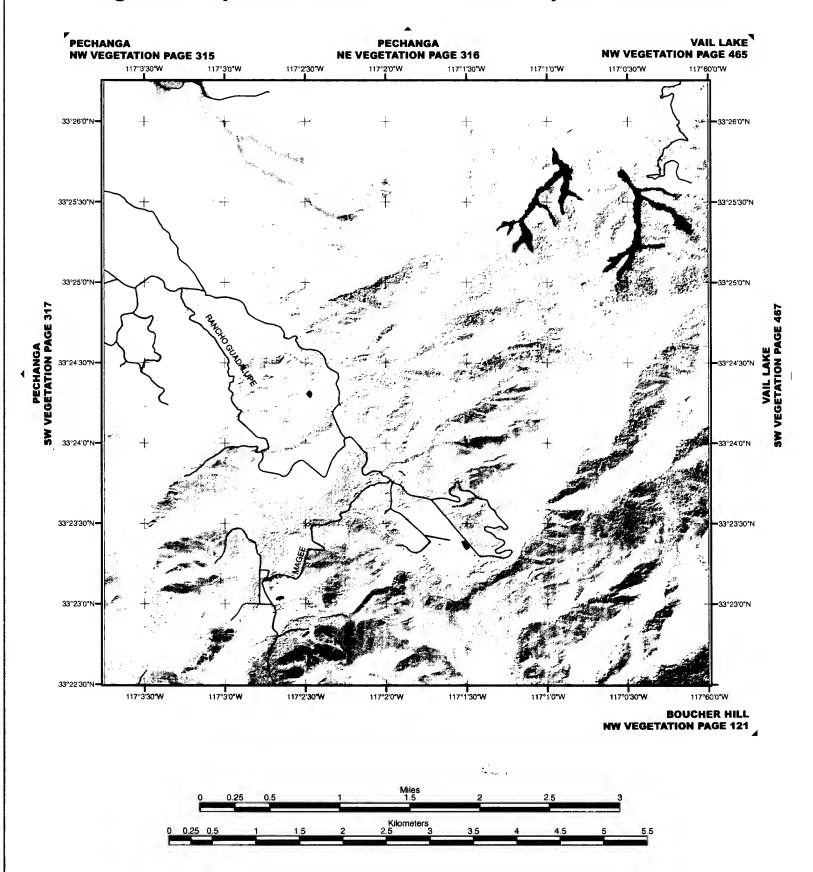


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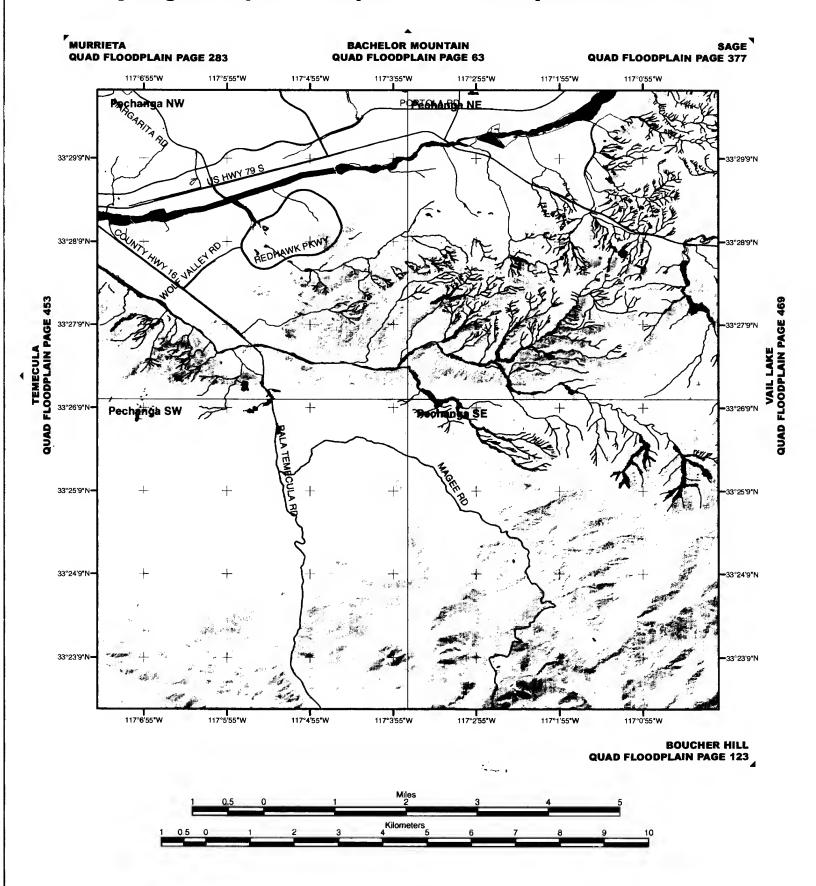




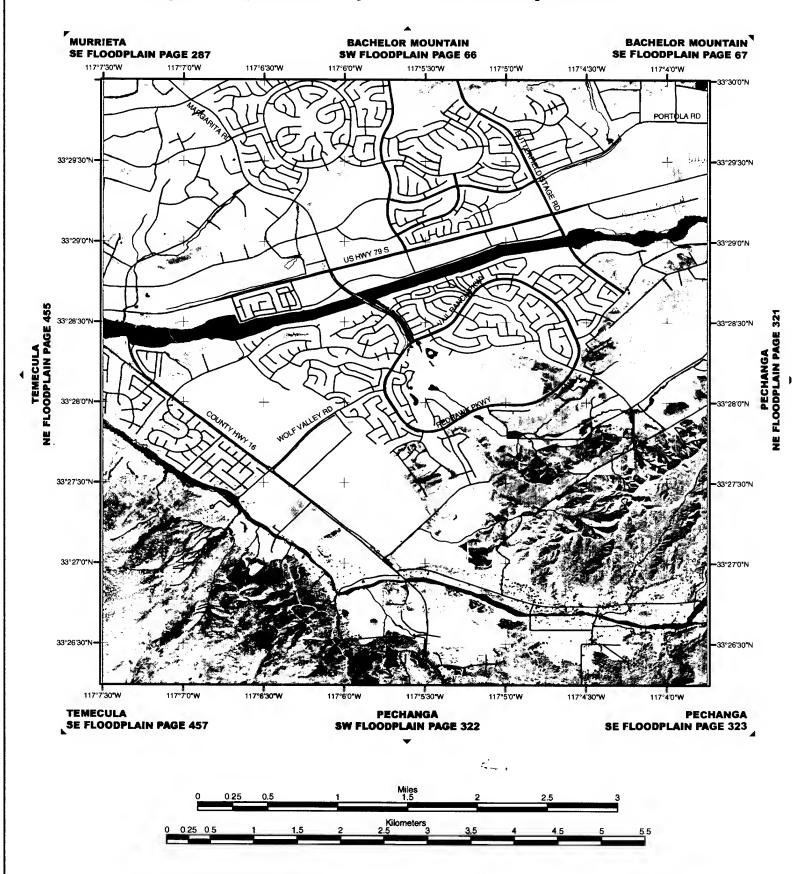
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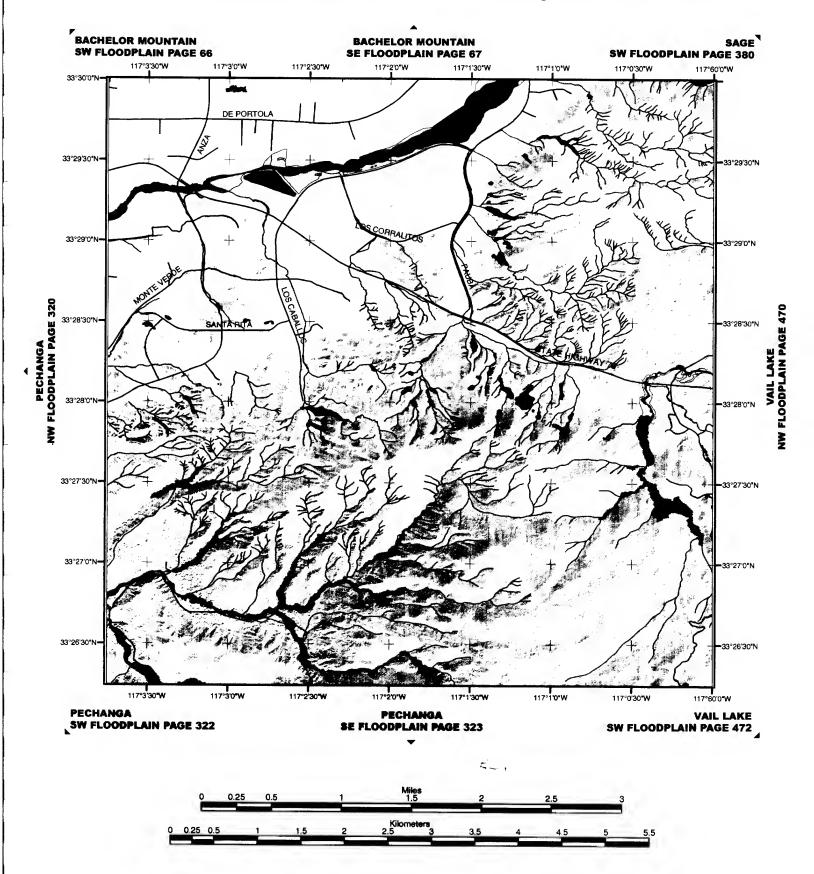
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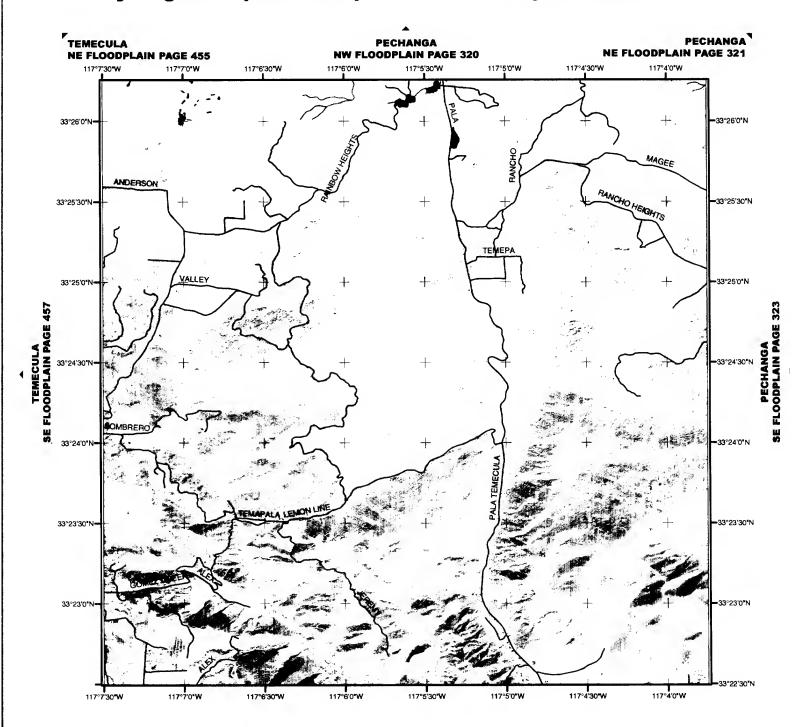
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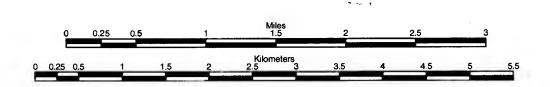


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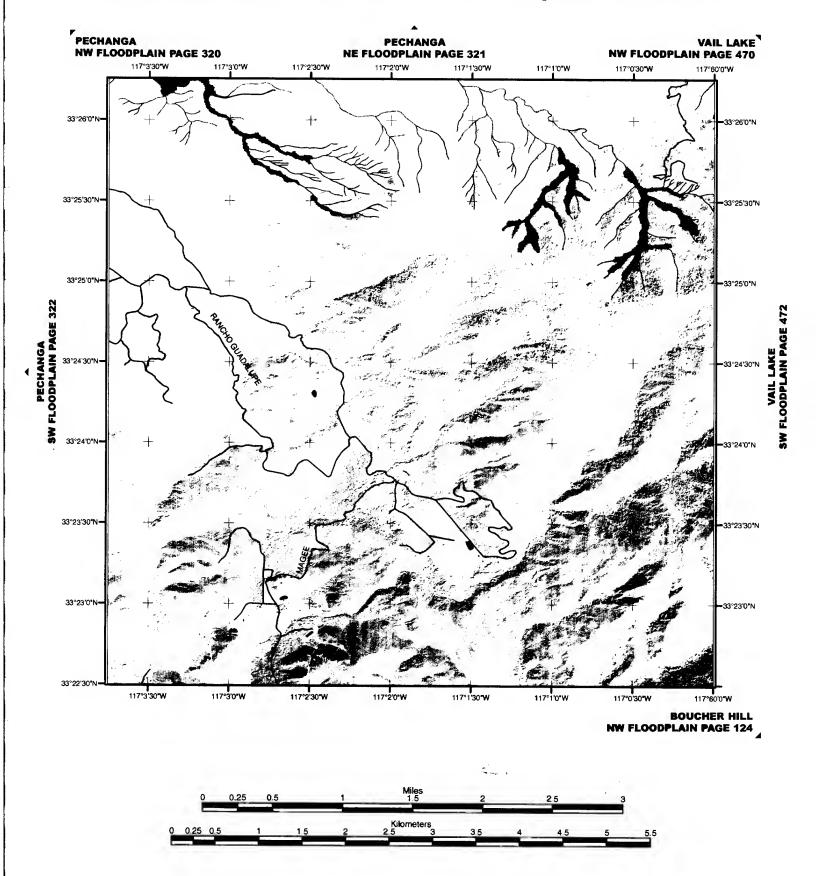


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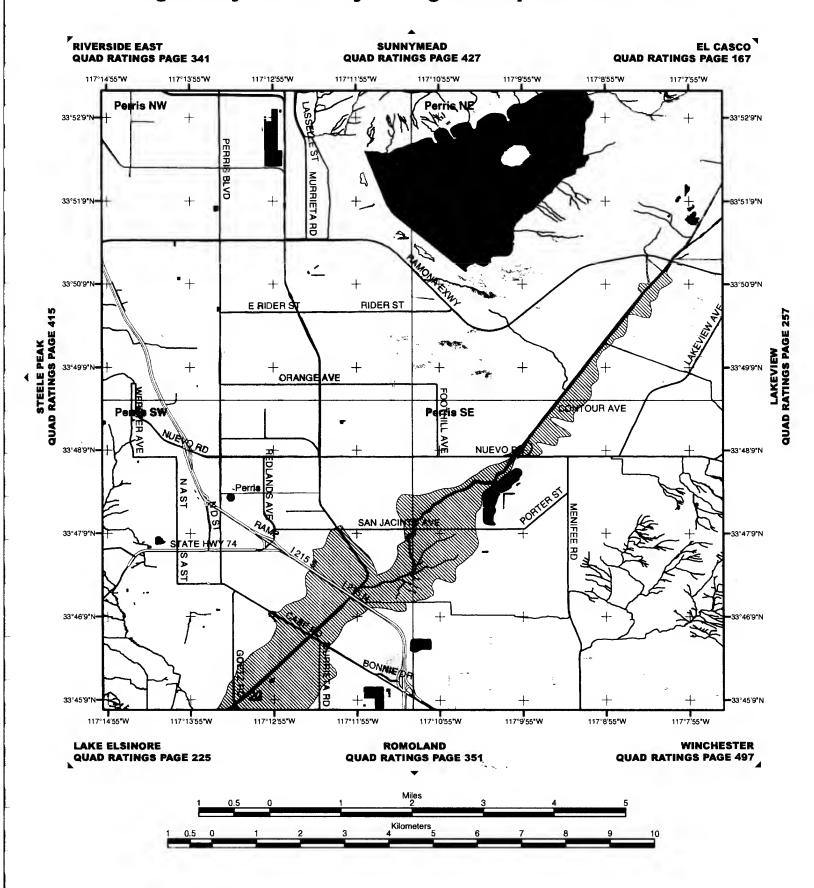


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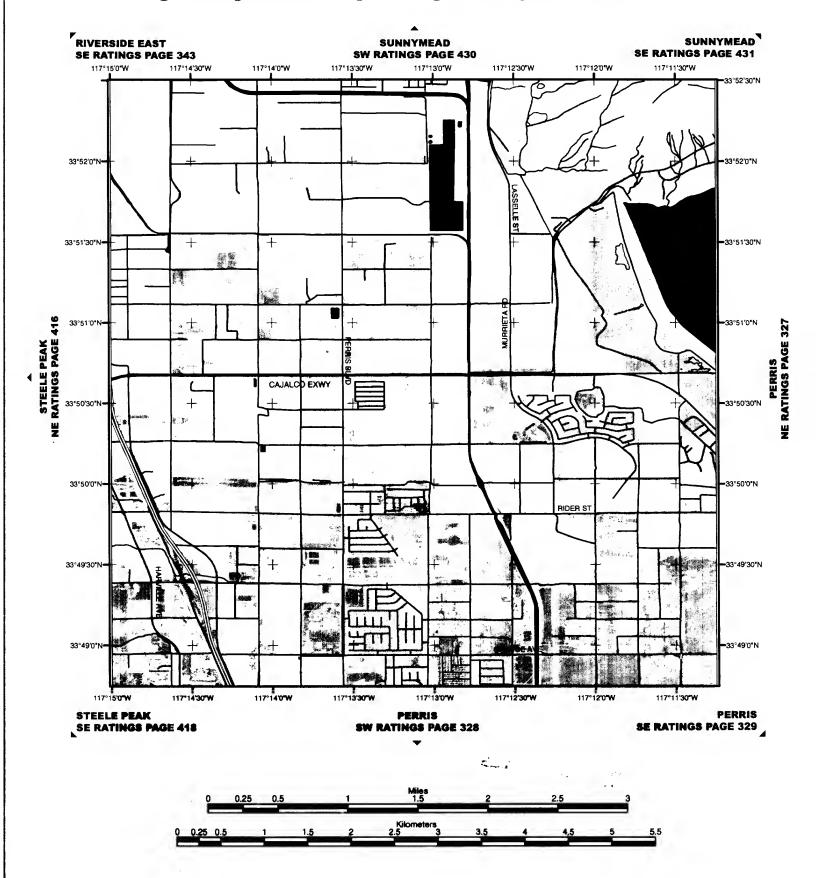


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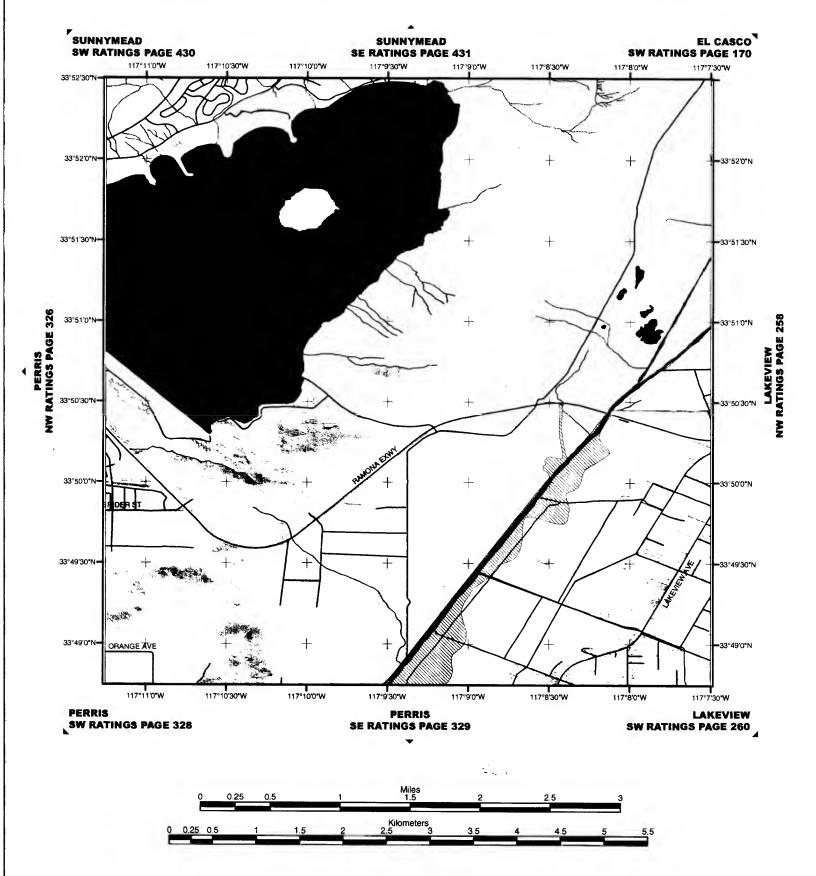
## Perris Quadrangle Regulatory Probability Ratings for Aquatic Resources



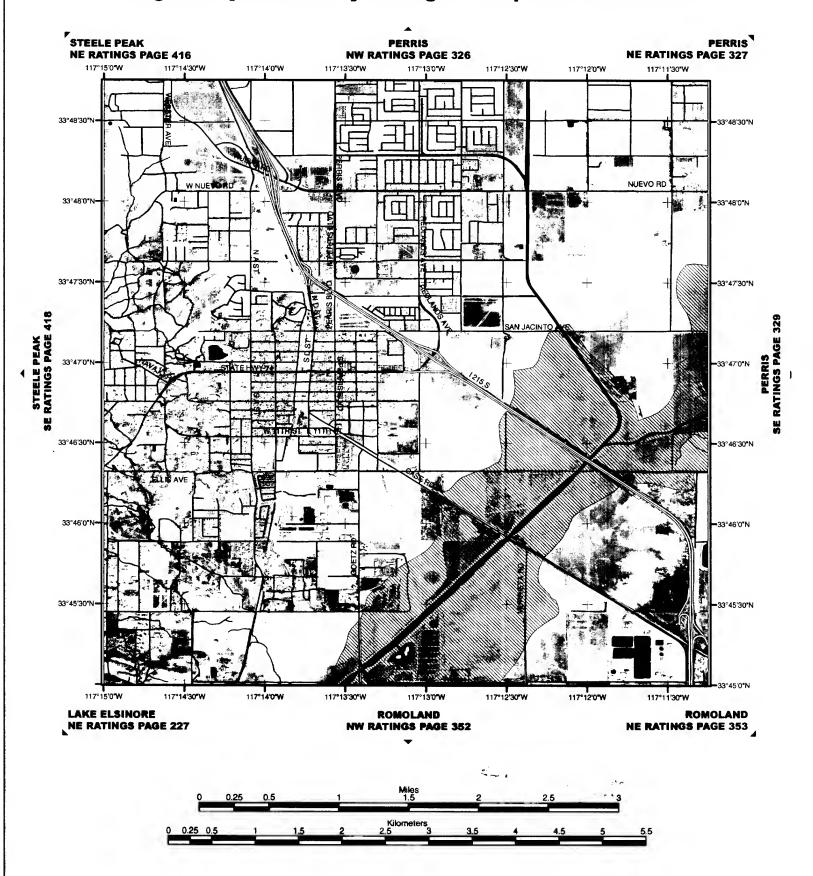
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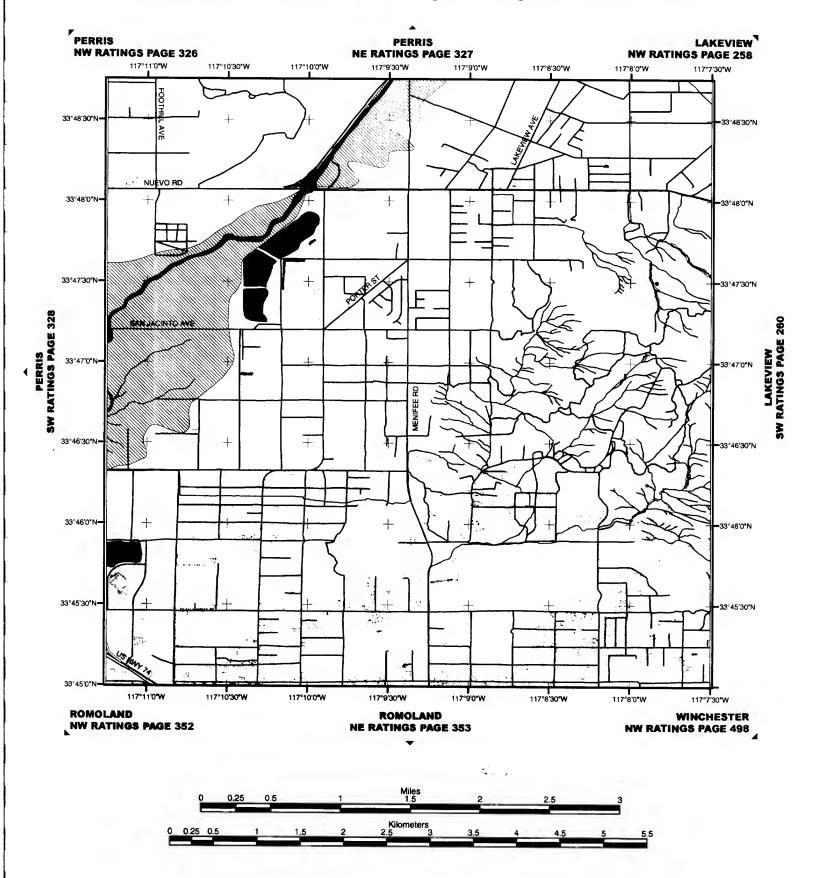
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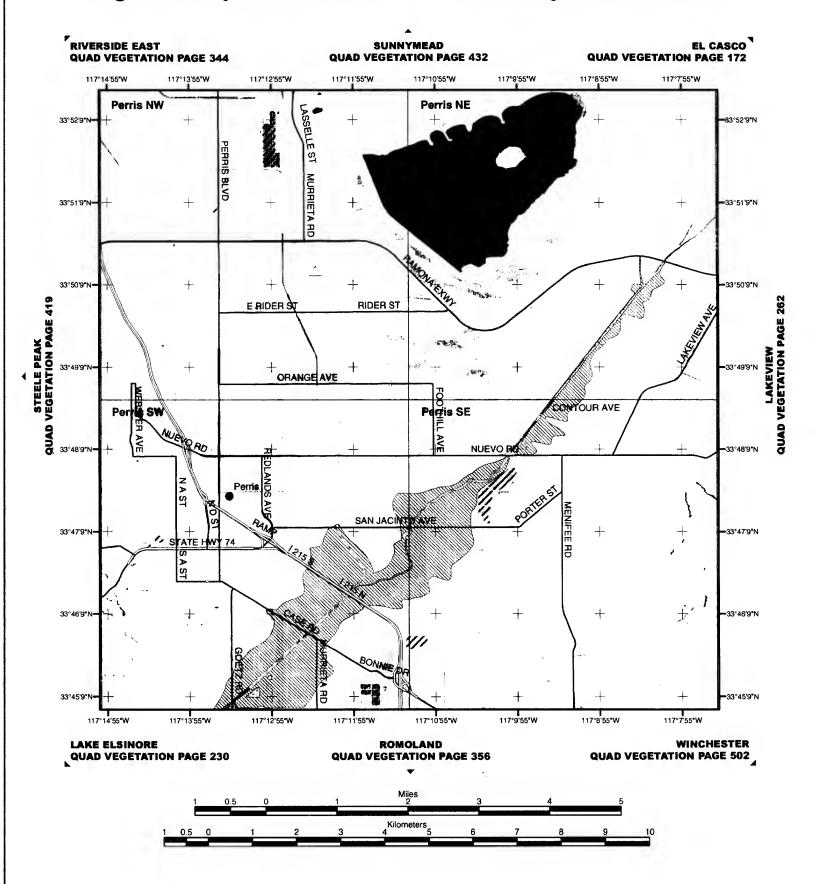
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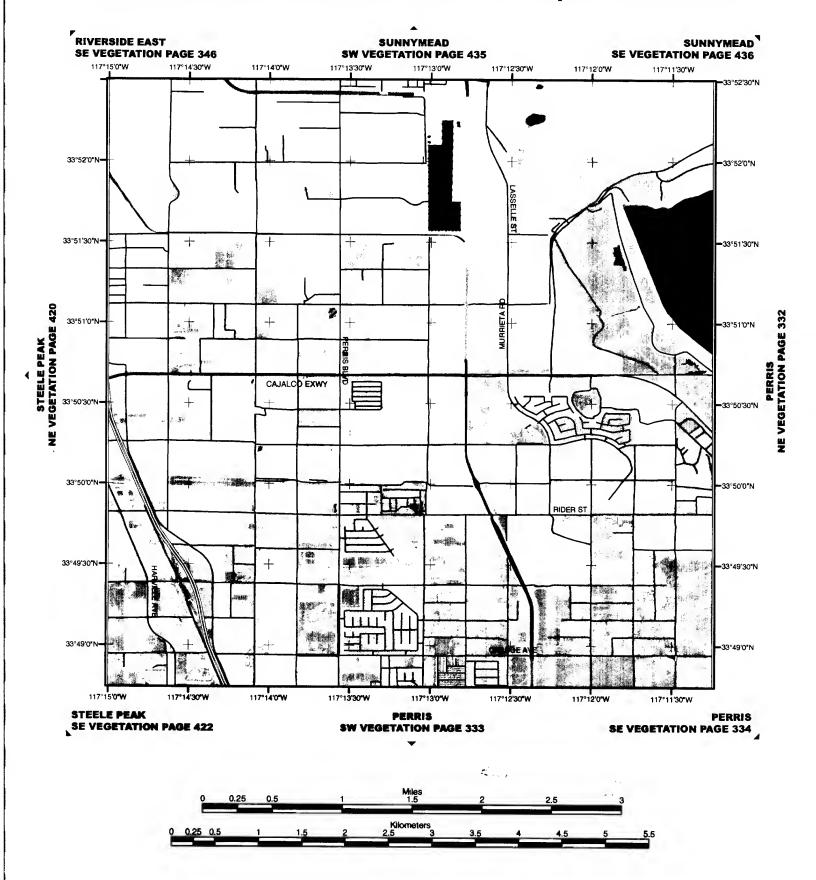
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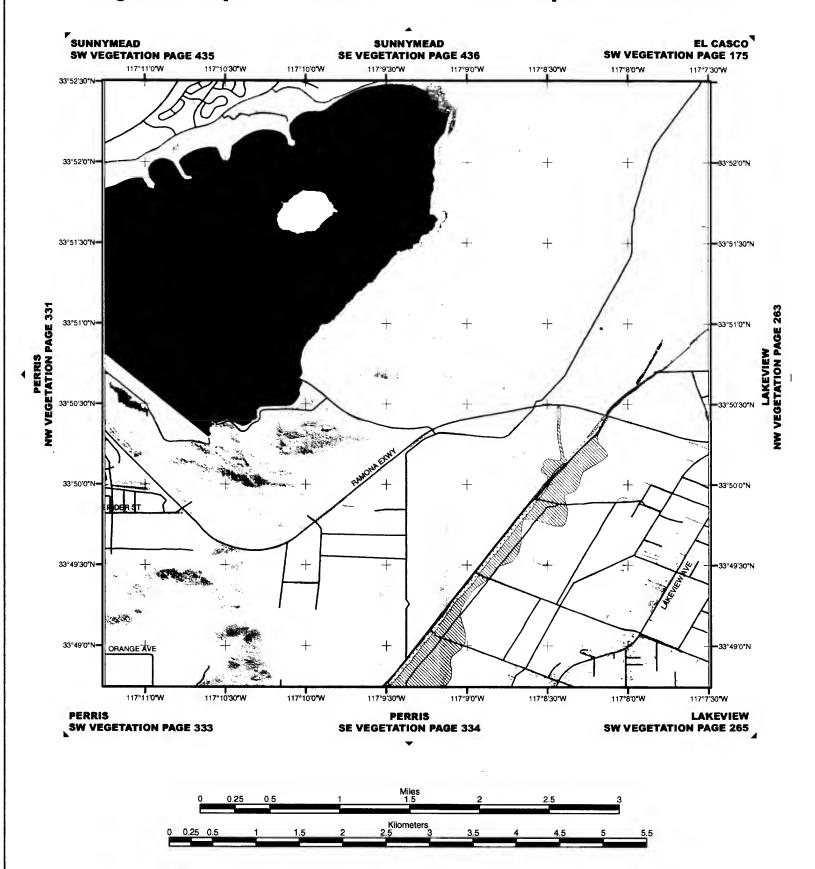
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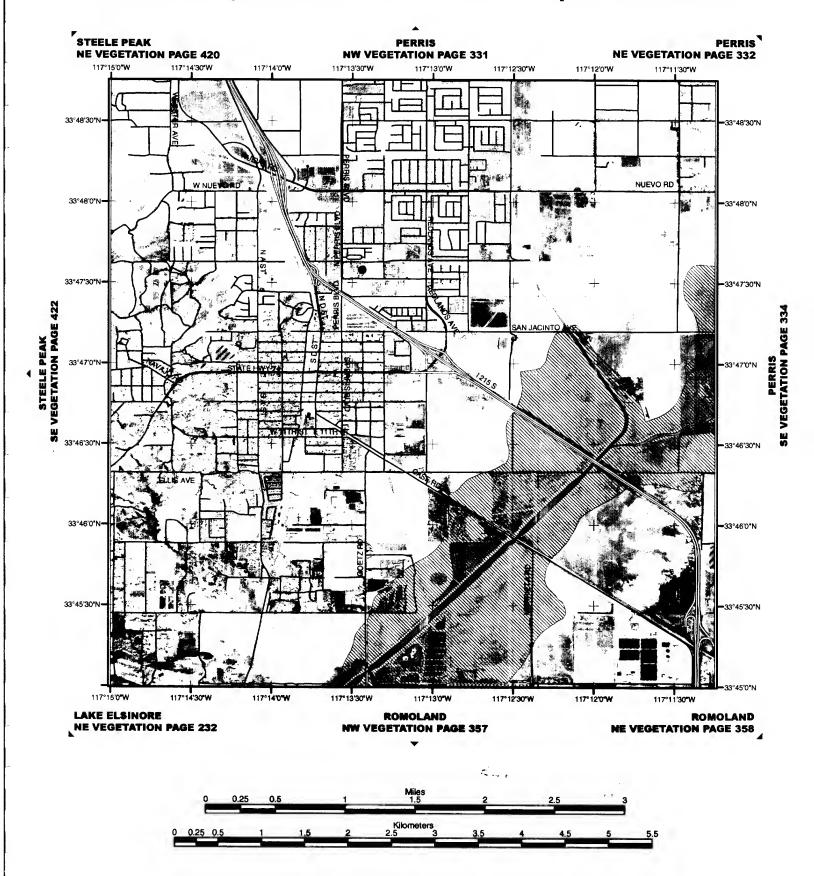
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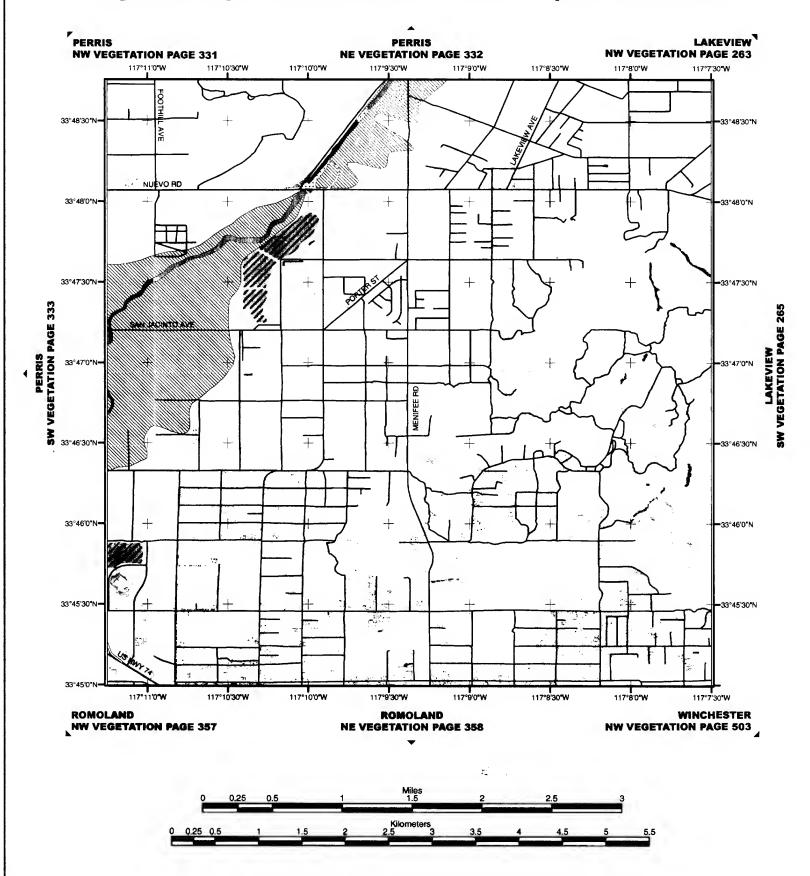
# Perris North East Quarter-Quadrangle Vegetation Species Association Units for Aquatic Resources



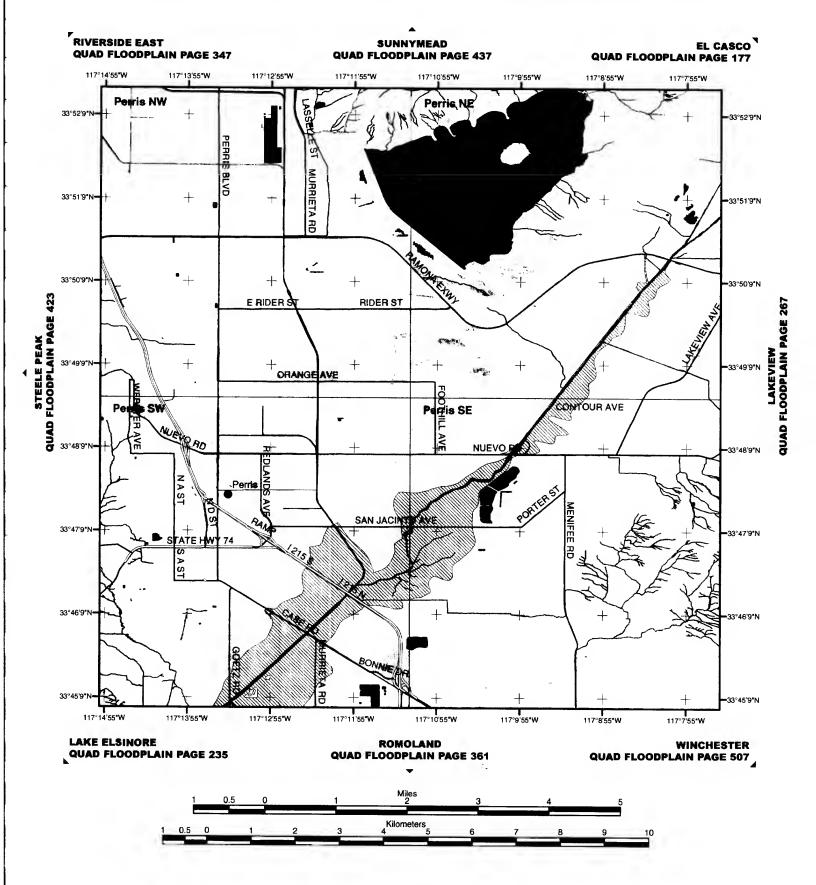
# Perris South West Quarter-Quadrangle Vegetation Species Association Units for Aquatic Resources



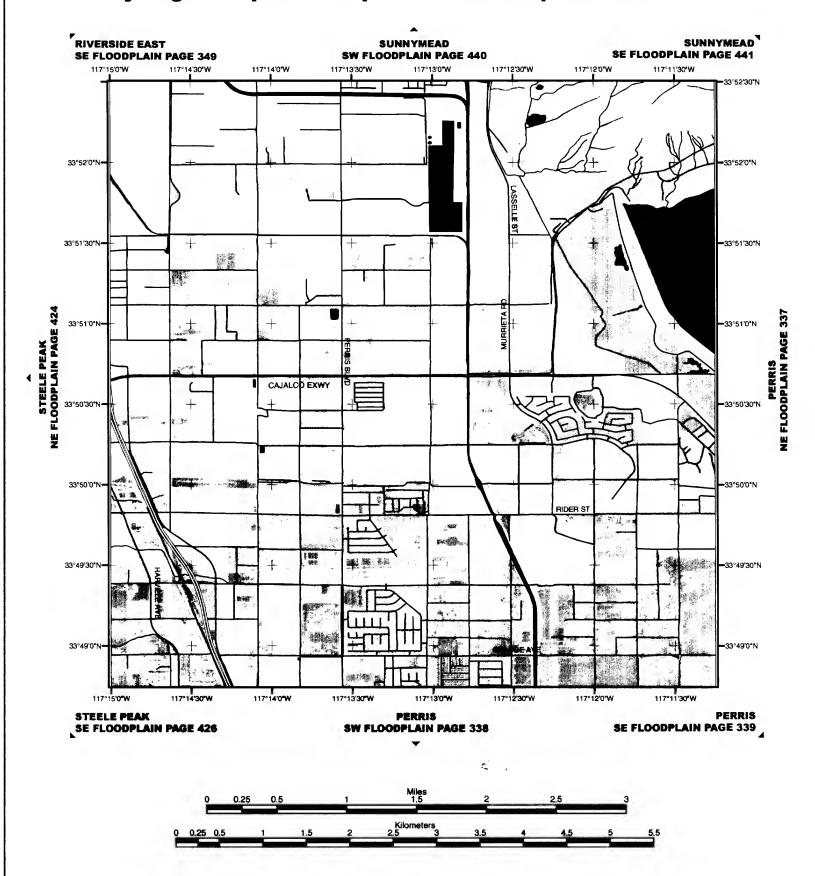
## Perris South East Quarter-Quadrangle Vegetation Species Association Units for Aquatic Resources



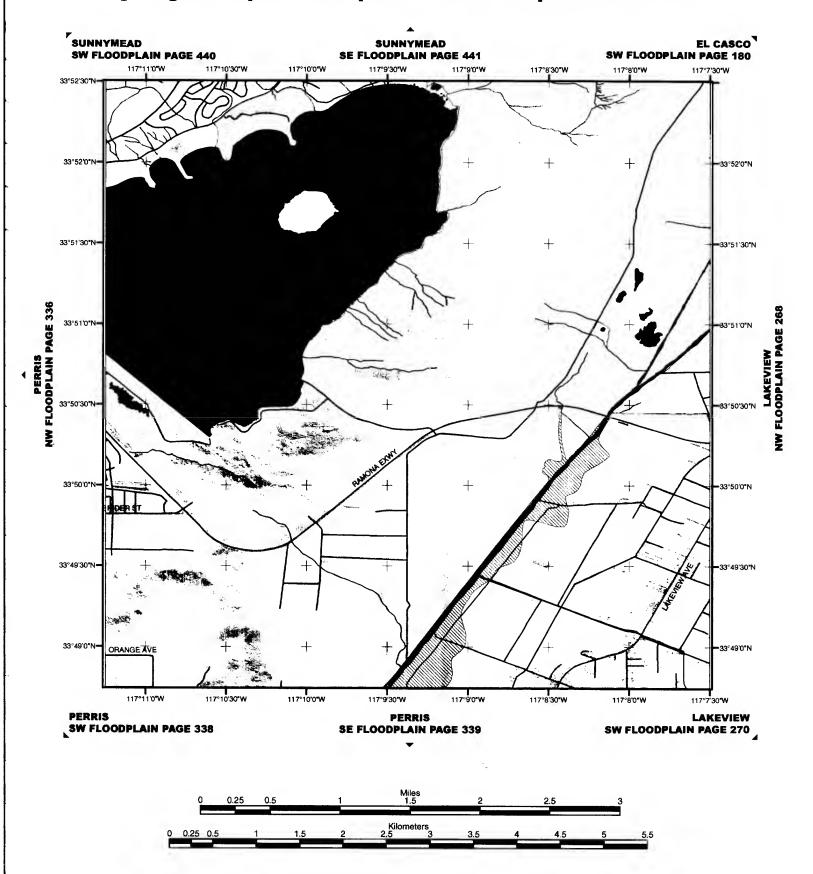
# Perris Quadrangle Hydrogeomorphic Floodplain Units for Aquatic Resources



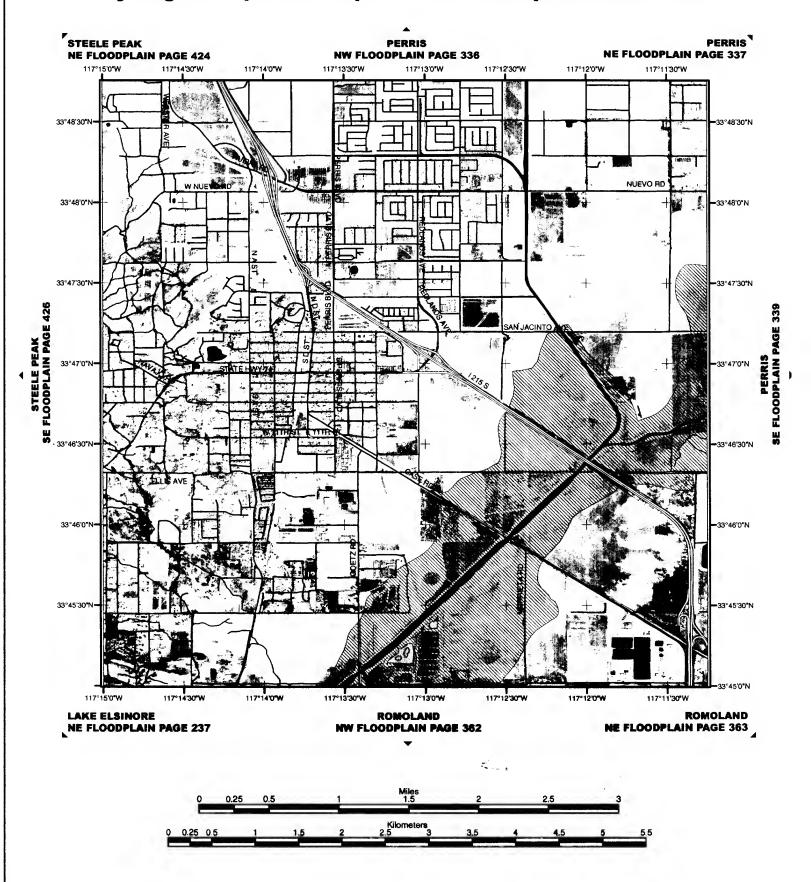
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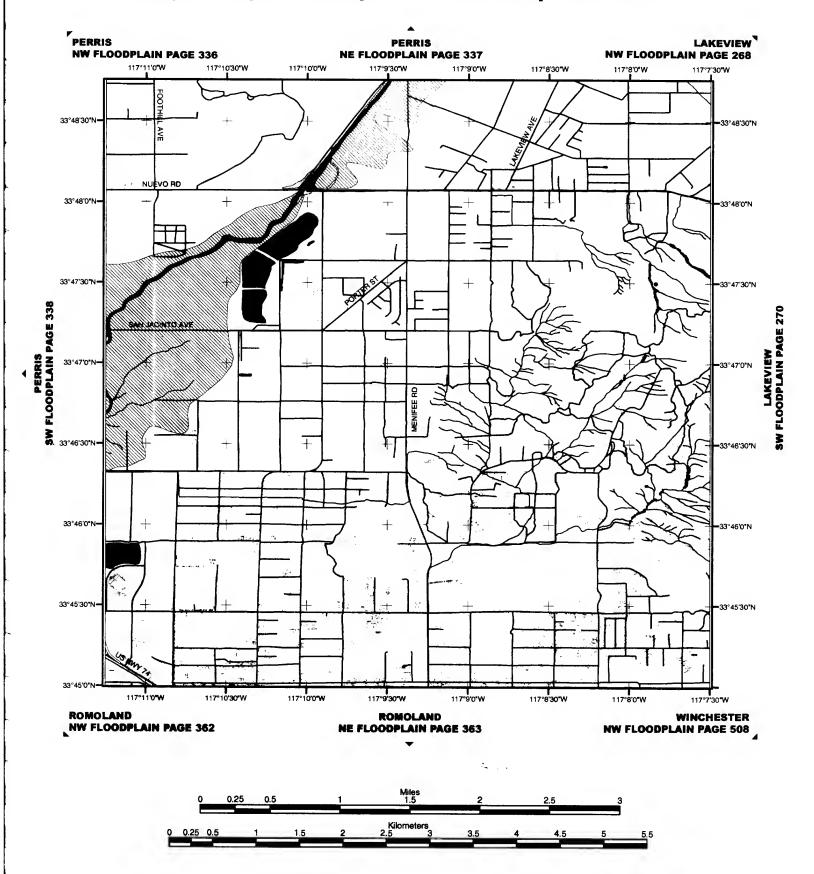
# Perris North East Quarter-Quadrangle Hydrogeomorphic Floodplain Units for Aquatic Resources



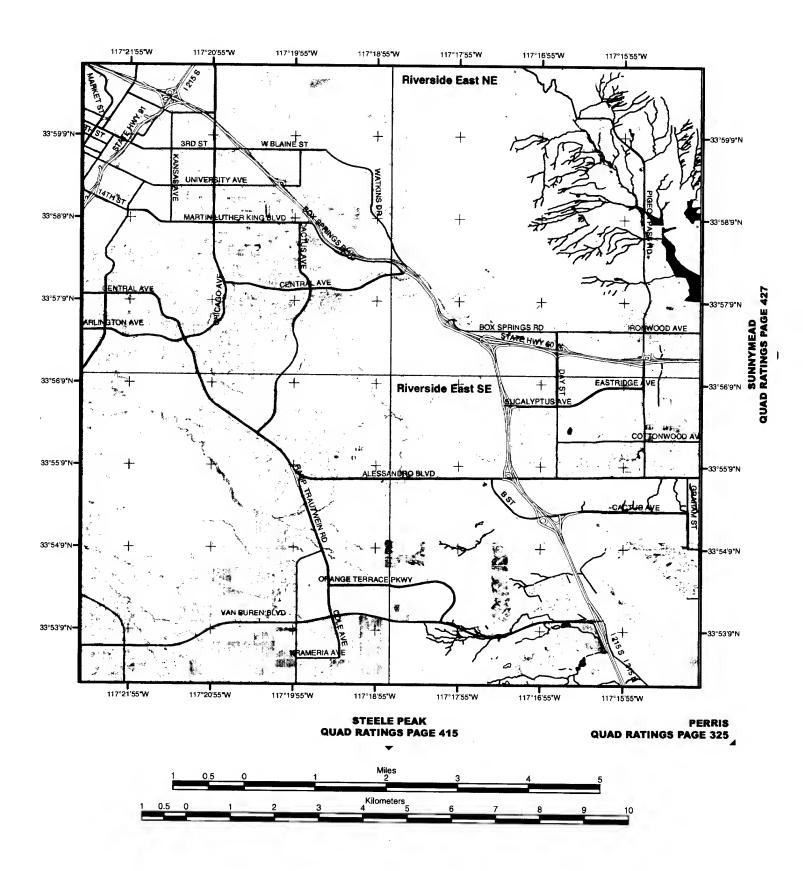
#### Perris South West Quarter-Quadrangle Hydrogeomorphic Floodplain Units for Aquatic Resources



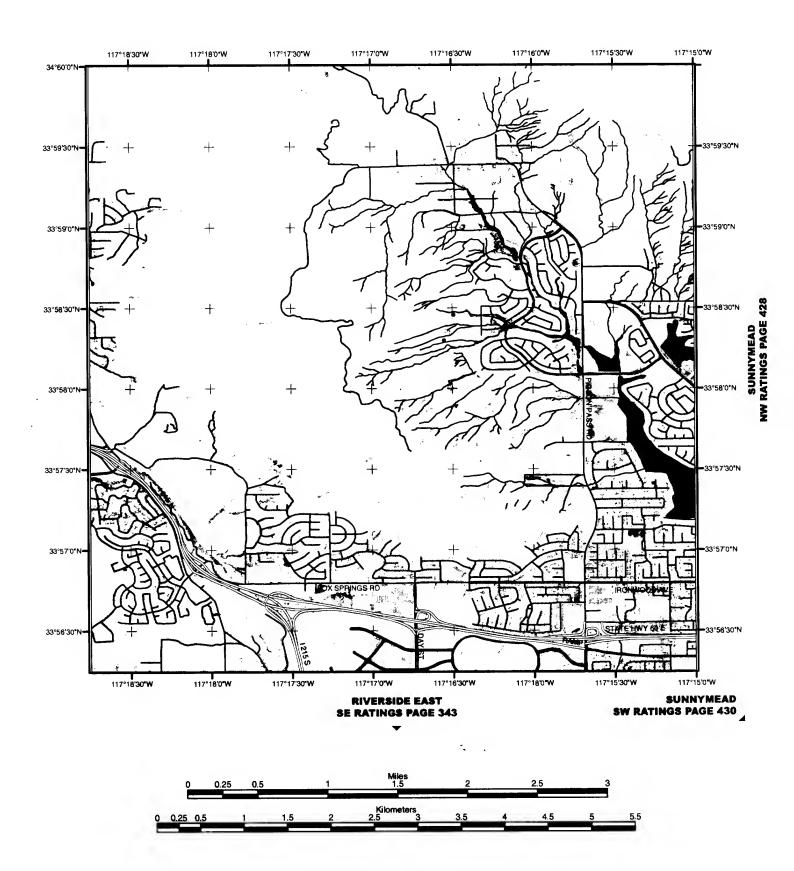
# Perris South East Quarter-Quadrangle Hydrogeomorphic Floodplain Units for Aquatic Resources



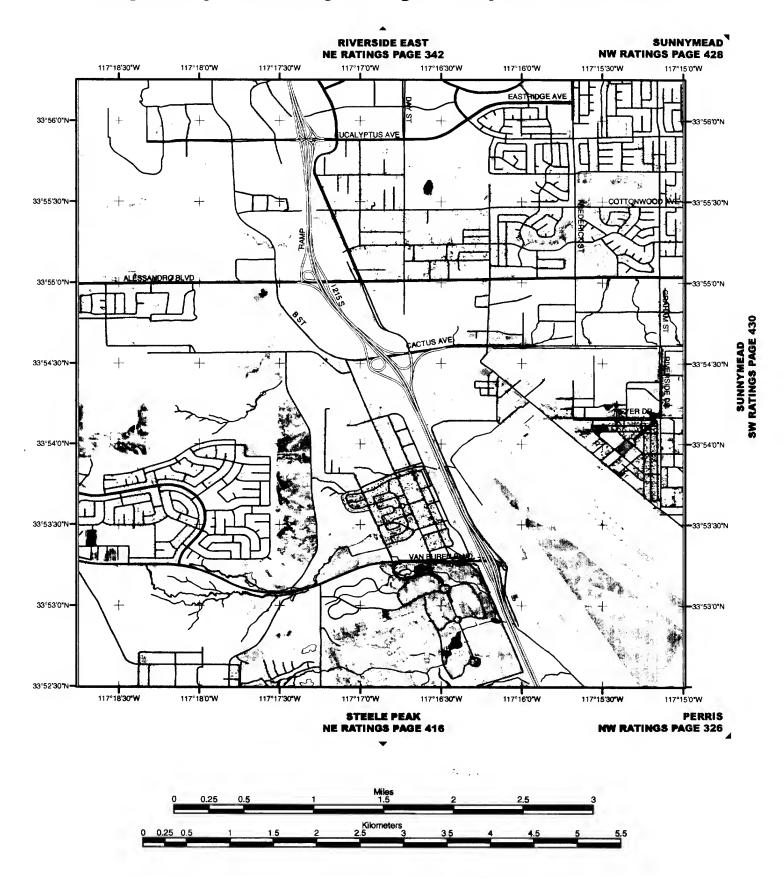
## Riverside East Quadrangle Regulatory Probability Ratings for Aquatic Resources



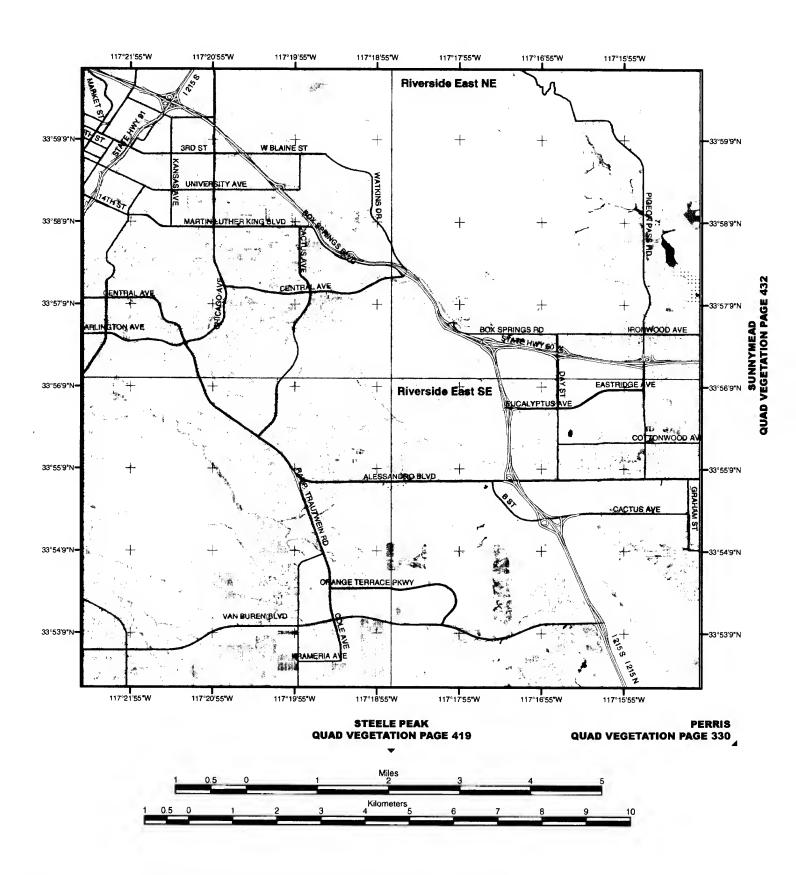
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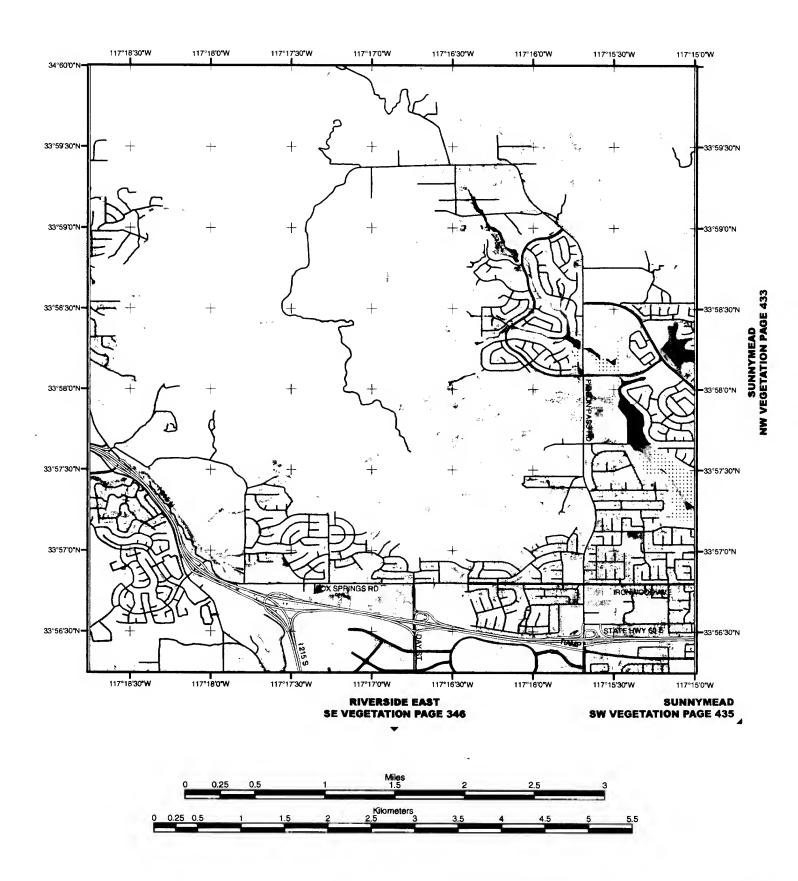
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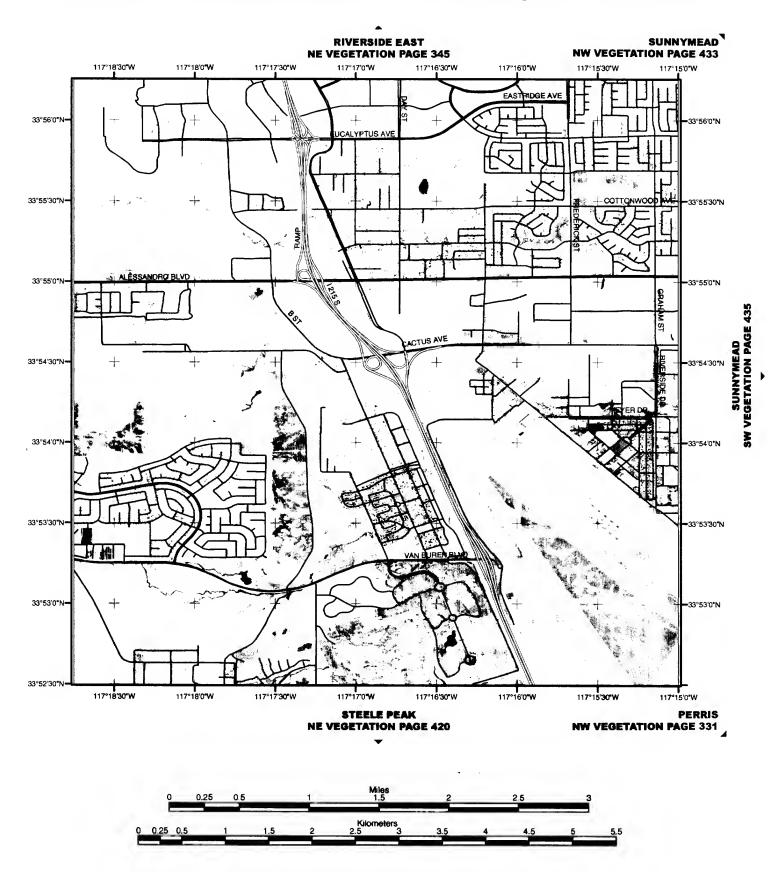
#### Riverside East Quadrangle Vegetation Species Association Units for Aquatic Resources



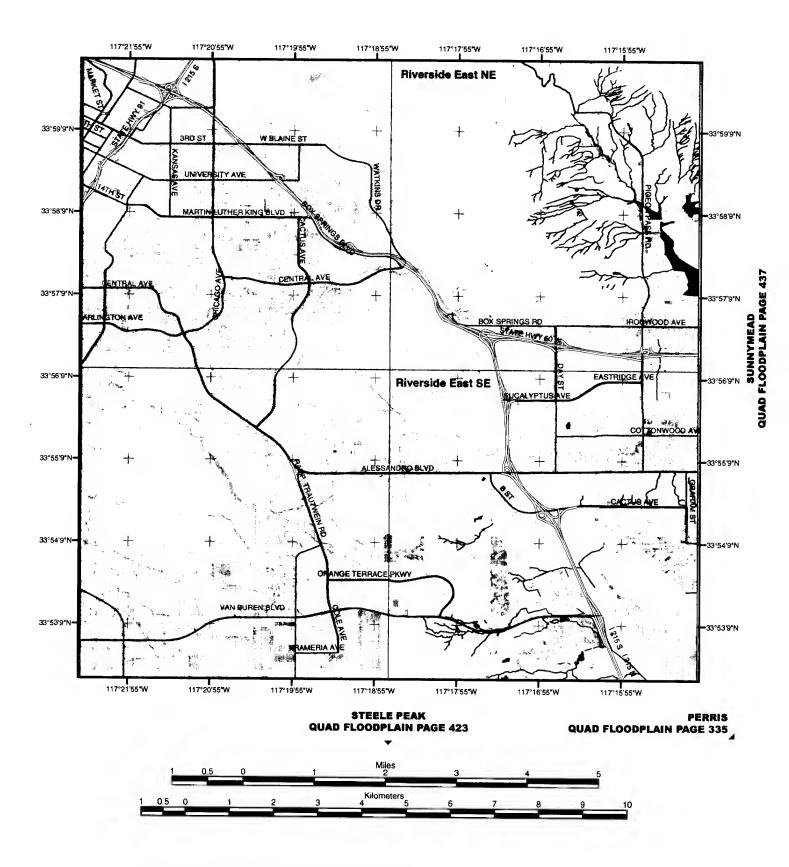
# Riverside East North East Quarter-Quadrangle Vegetation Species Association Units for Aquatic Resources



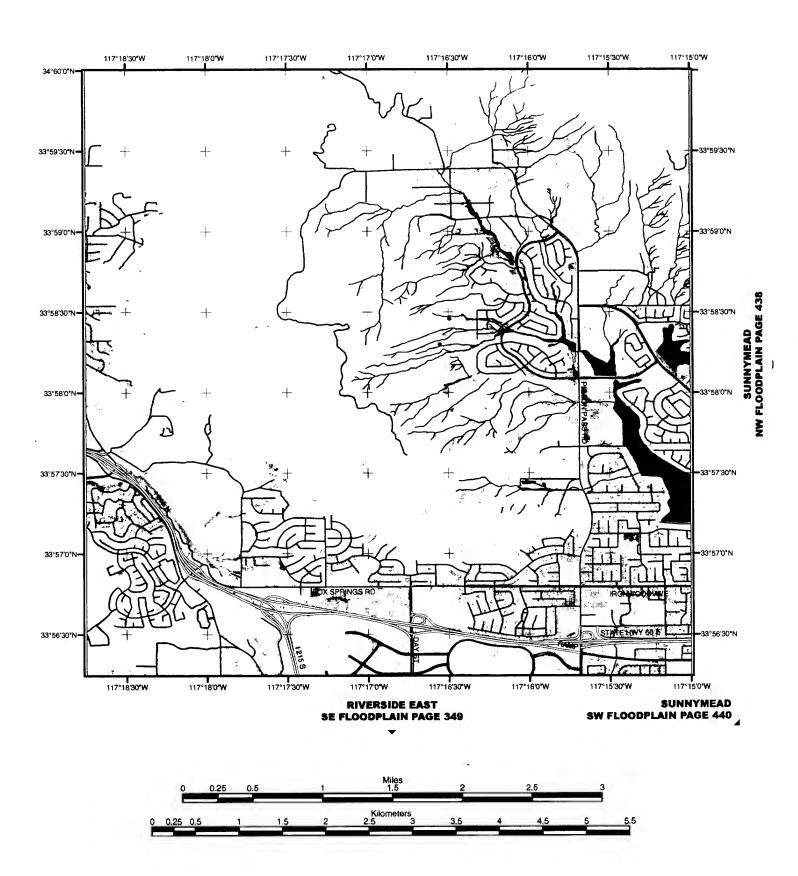
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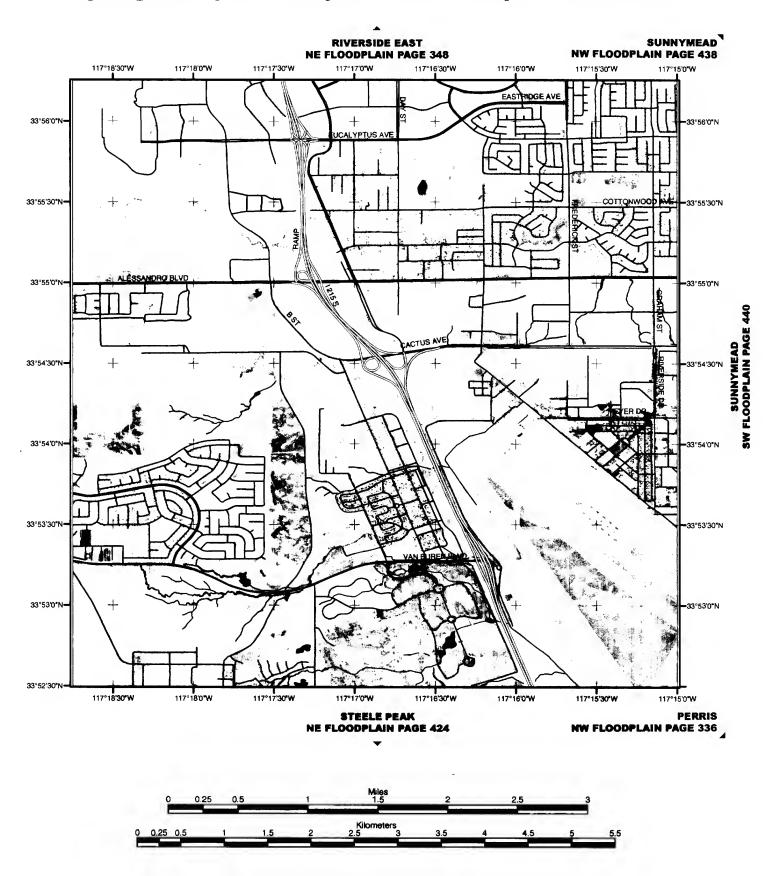
### Riverside East Quadrangle Hydrogeomorphic Floodplain Units for Aquatic Resources



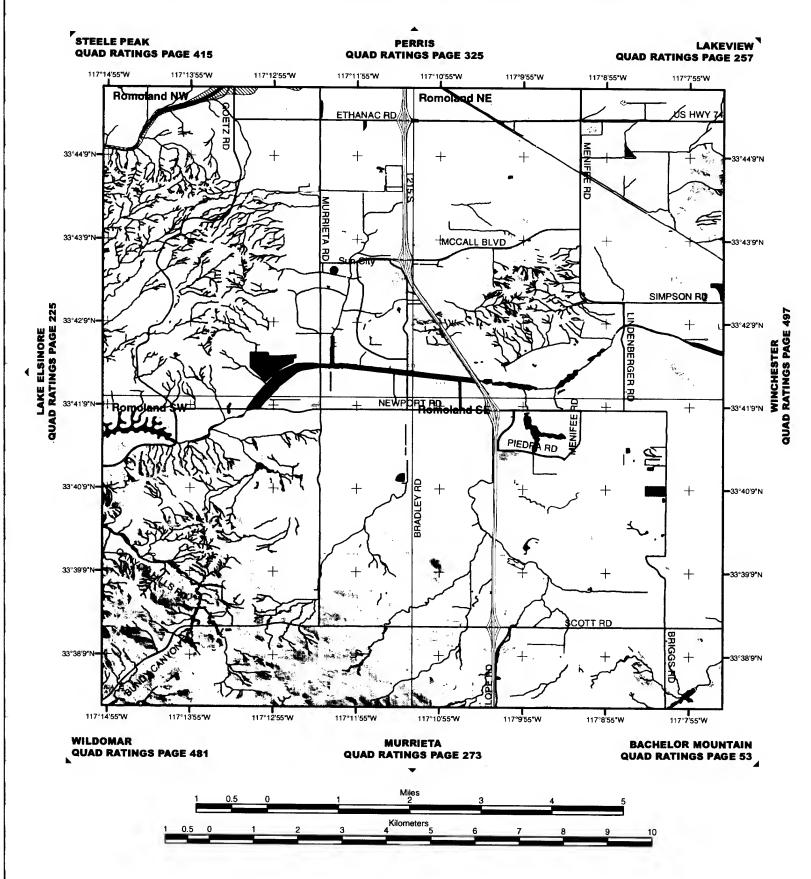
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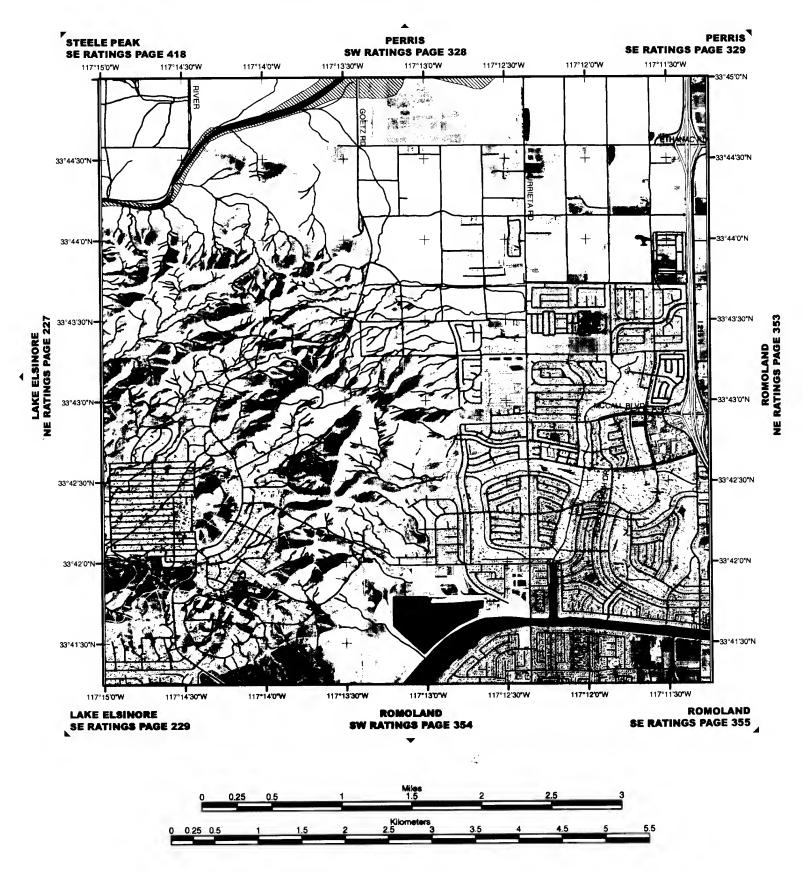
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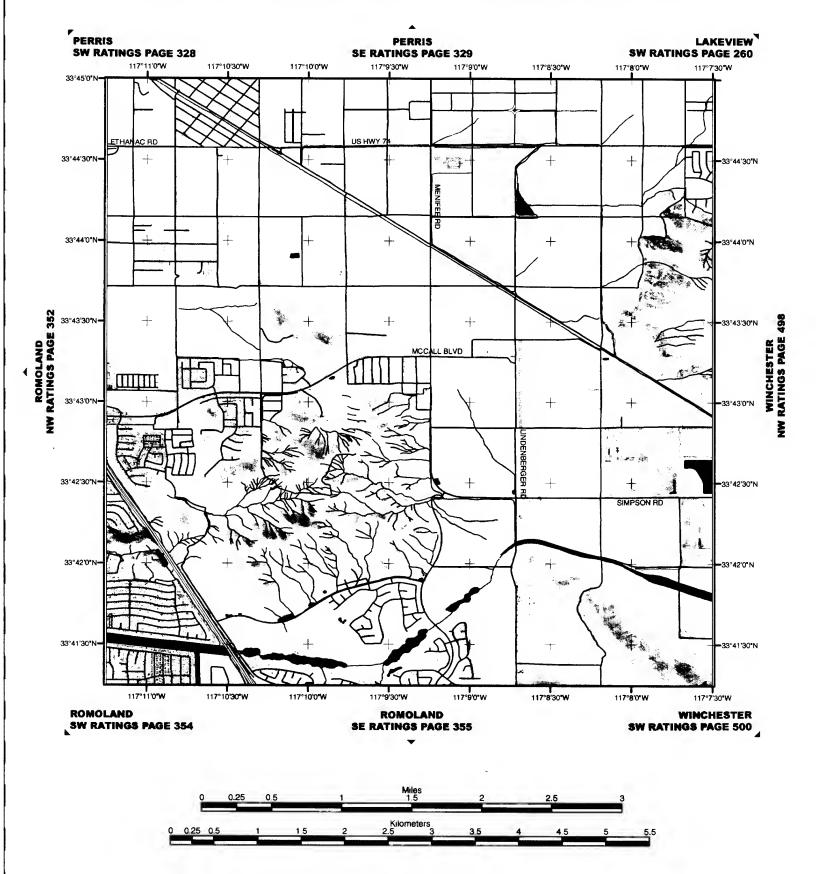
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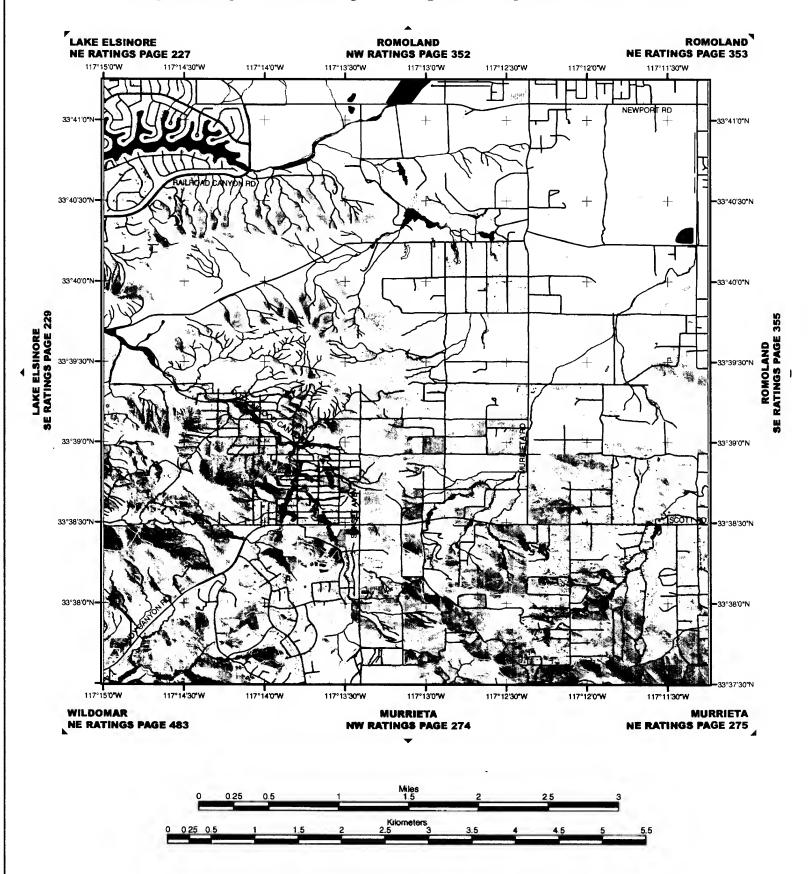
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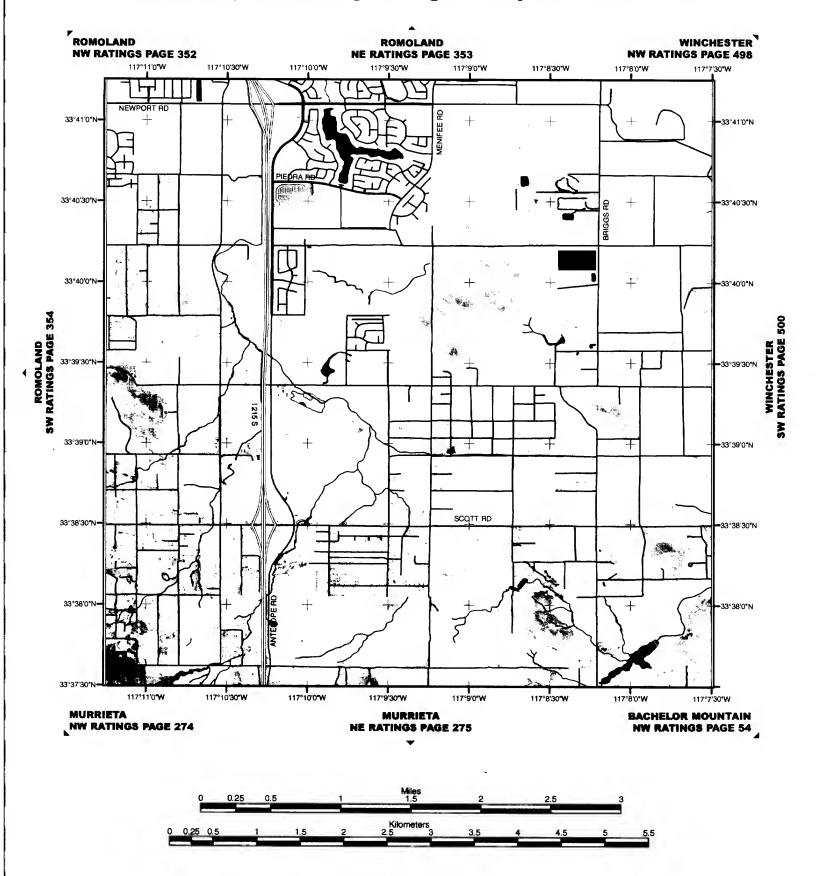
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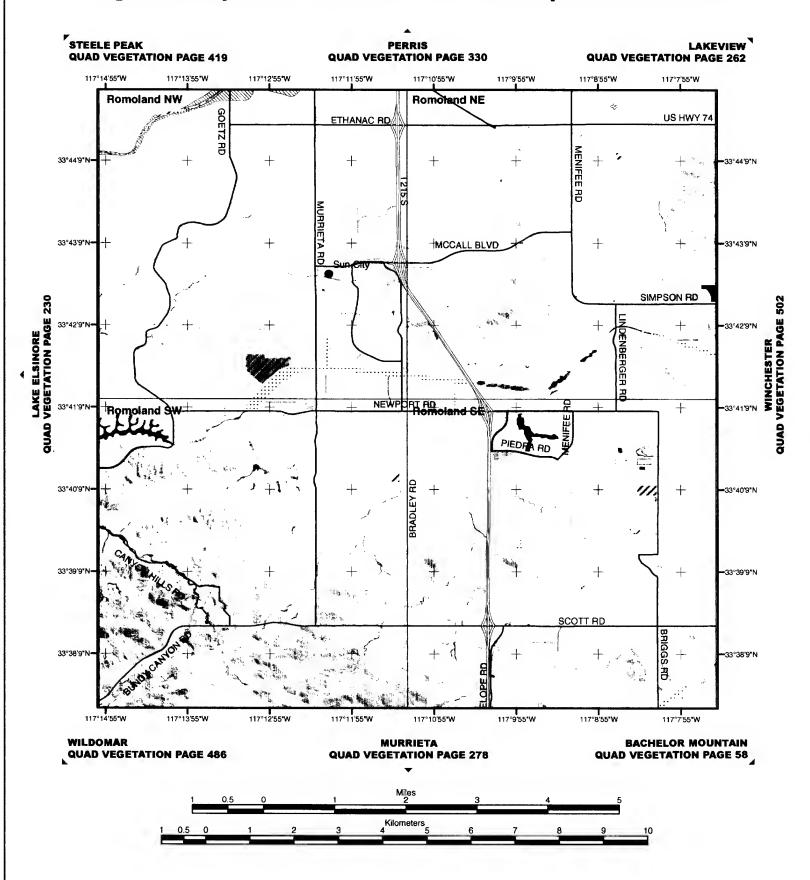
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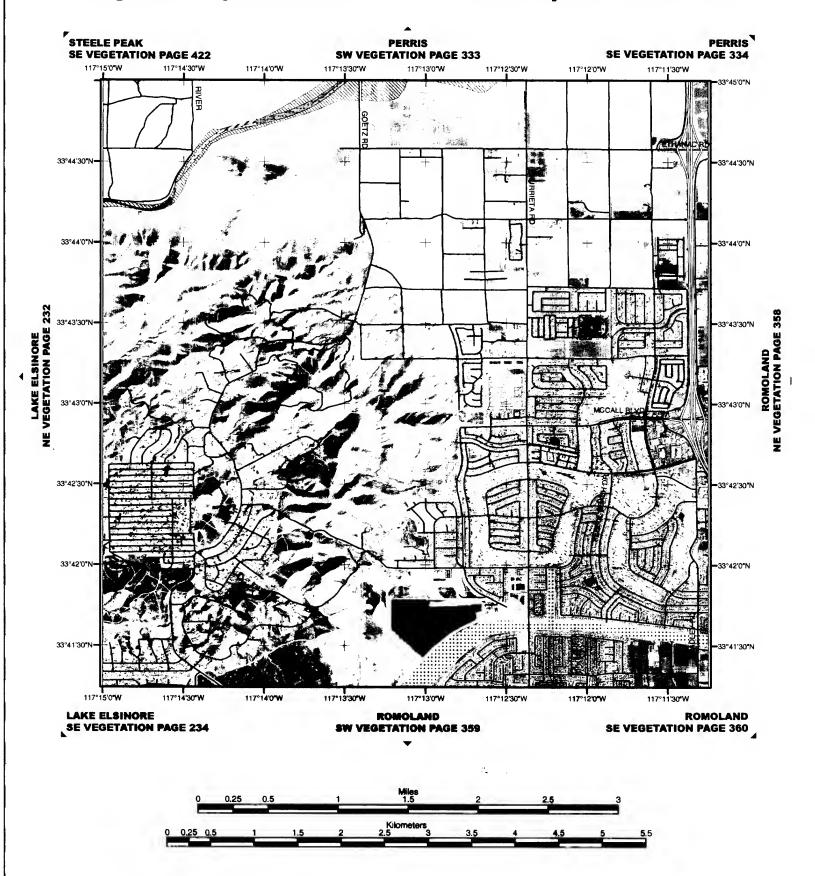
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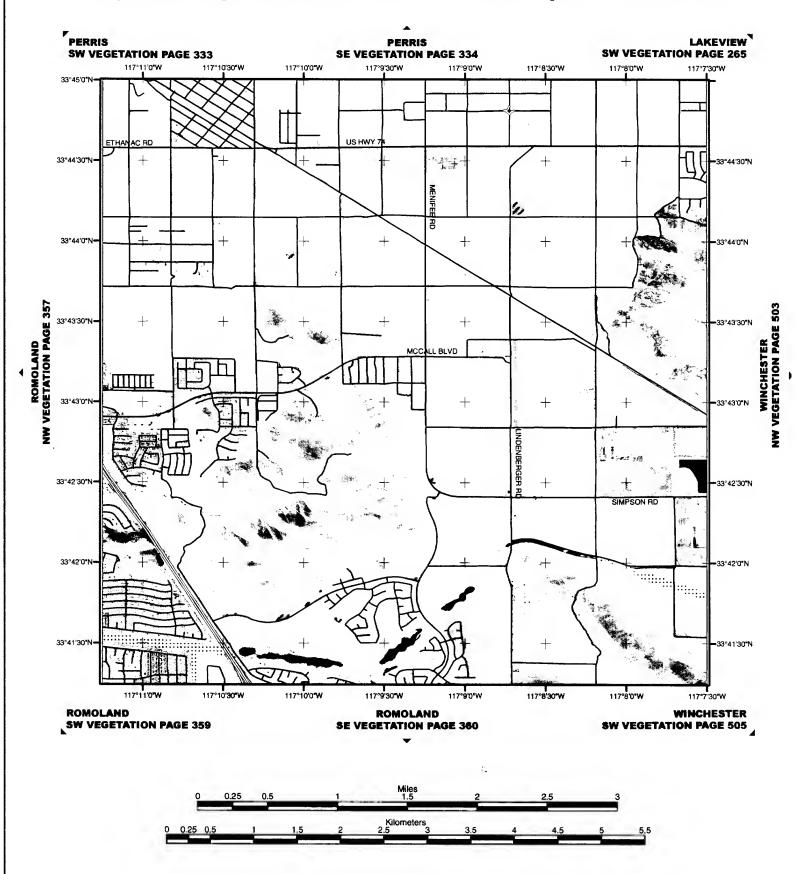
#### Romoland Quadrangle Vegetation Species Association Units for Aquatic Resources



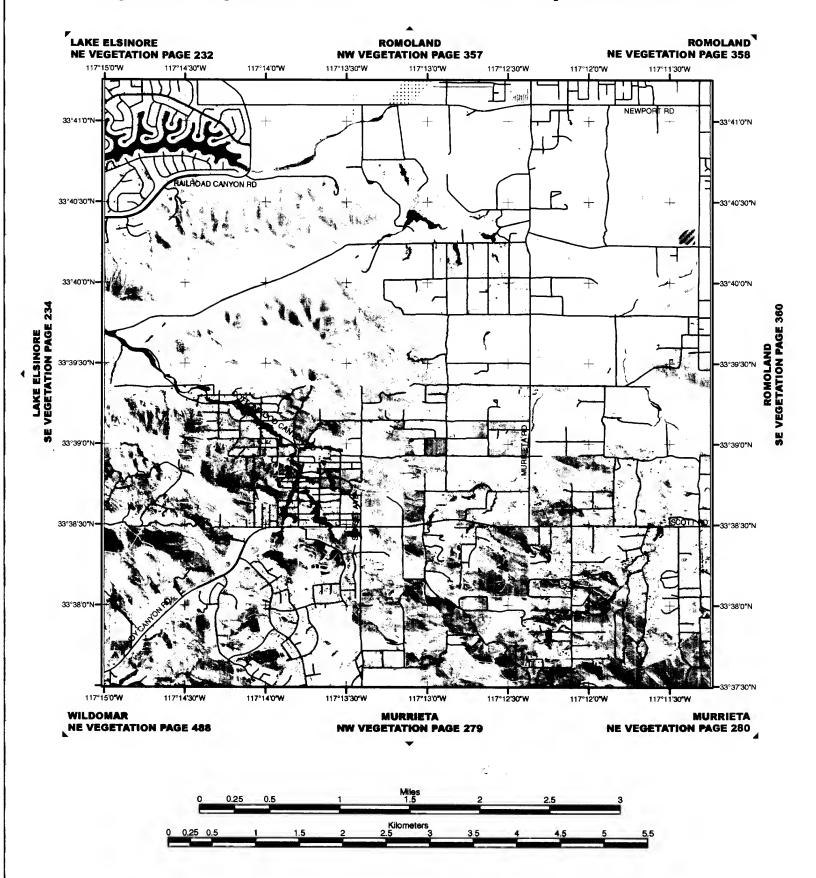
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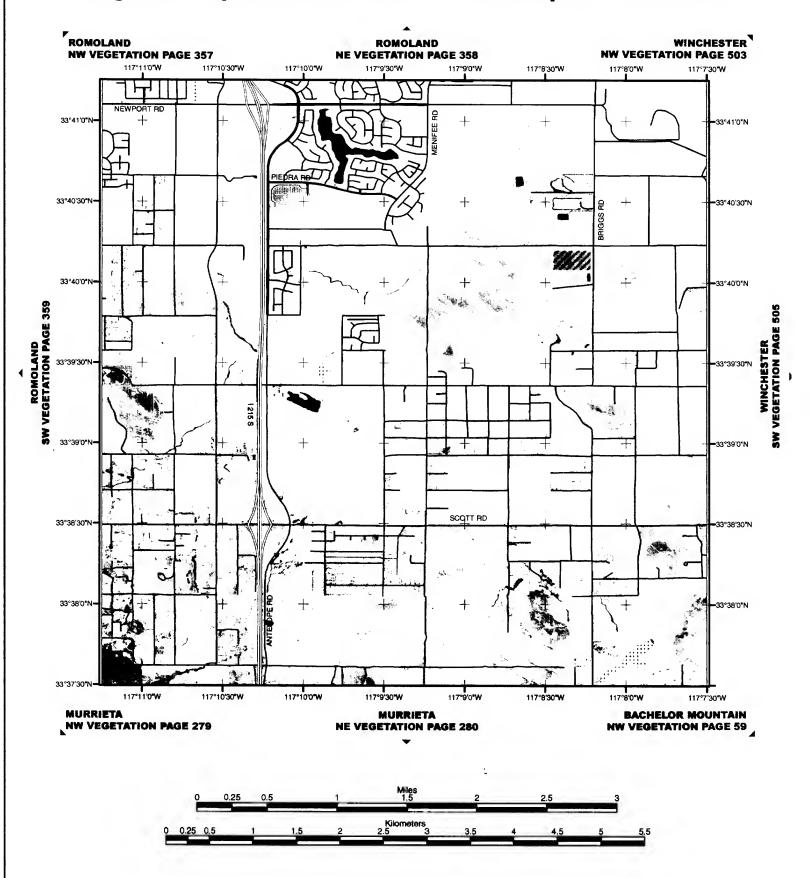
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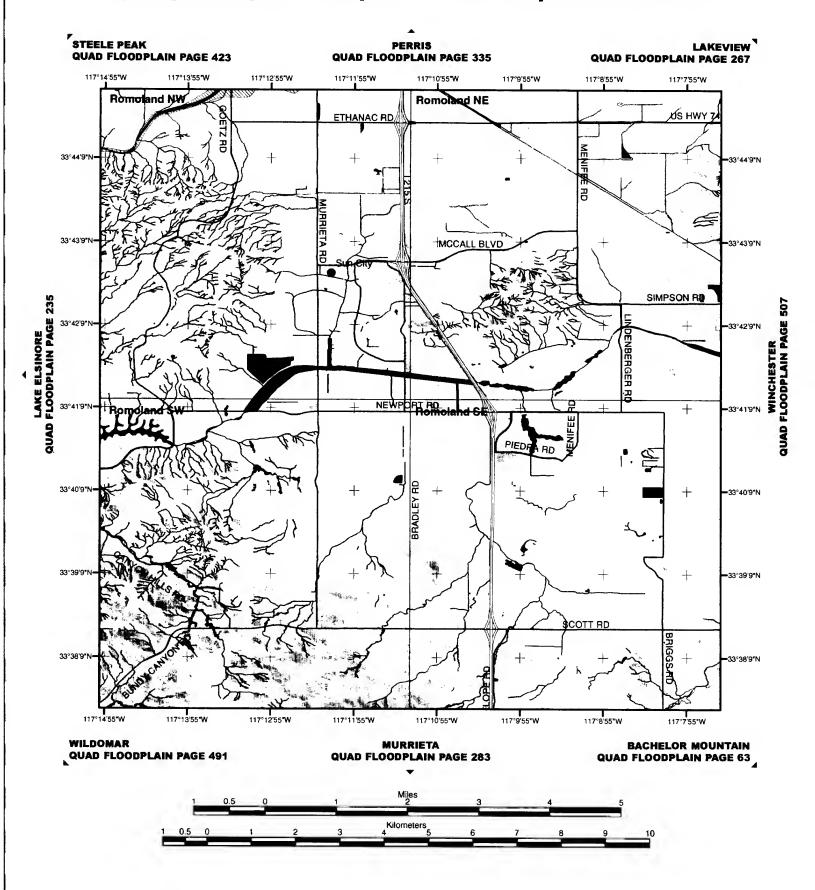
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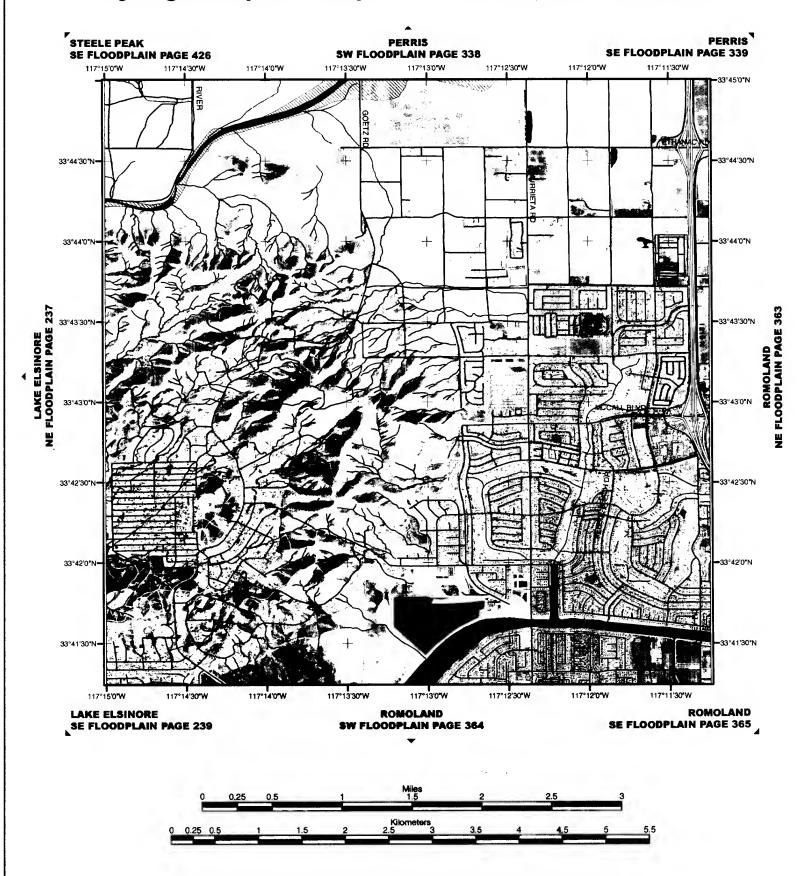
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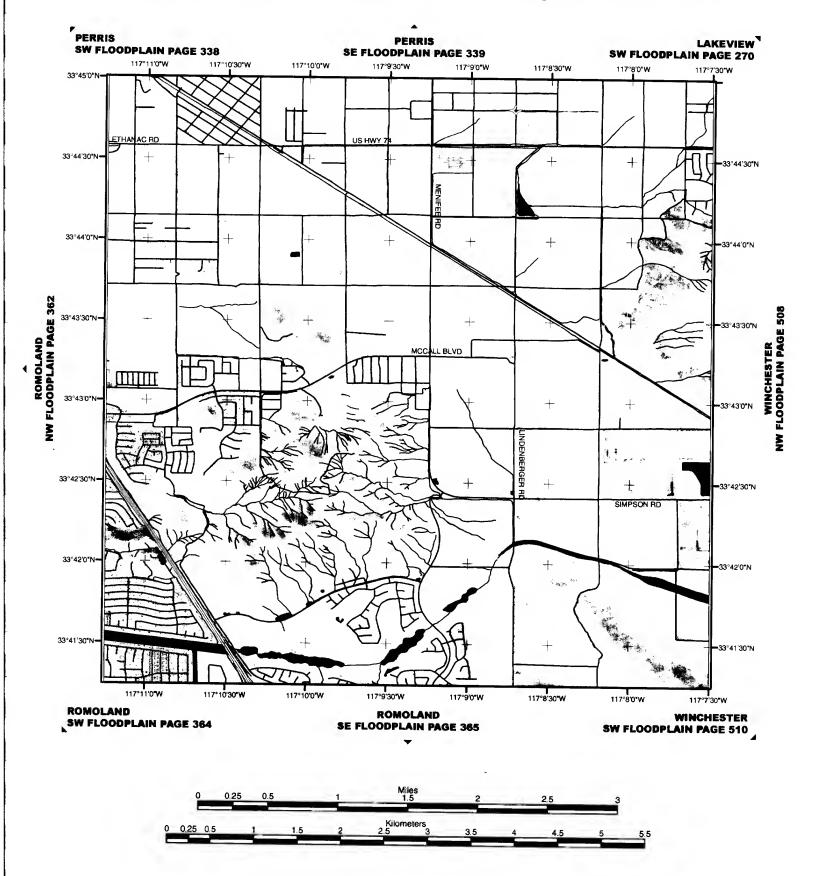
### Romoland Quadrangle Hydrogeomorphic Floodplain Units for Aquatic Resources



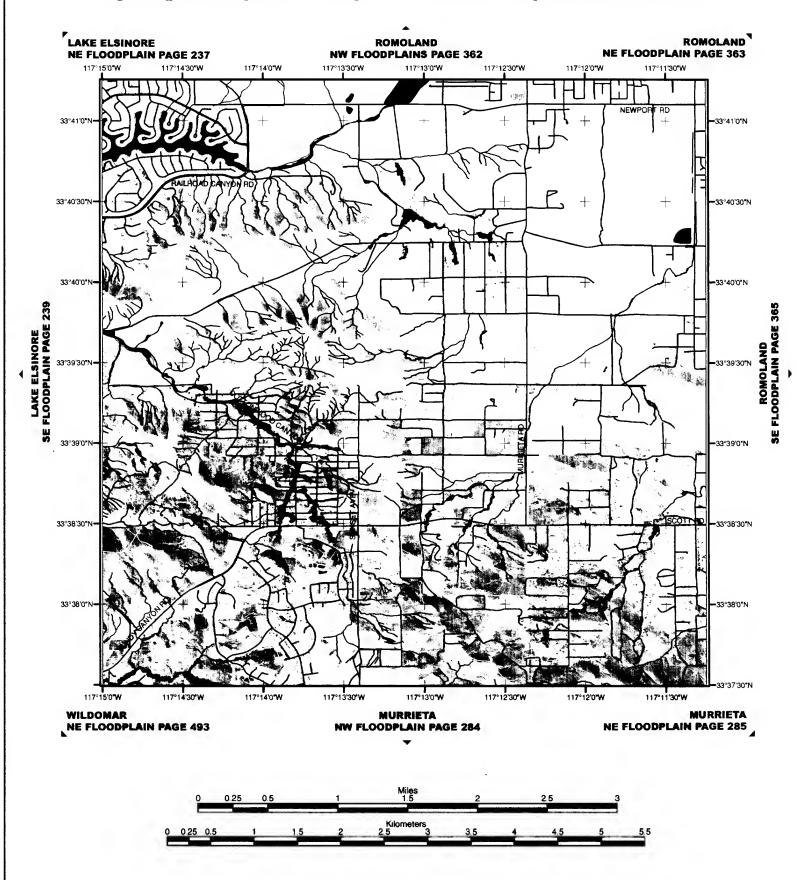
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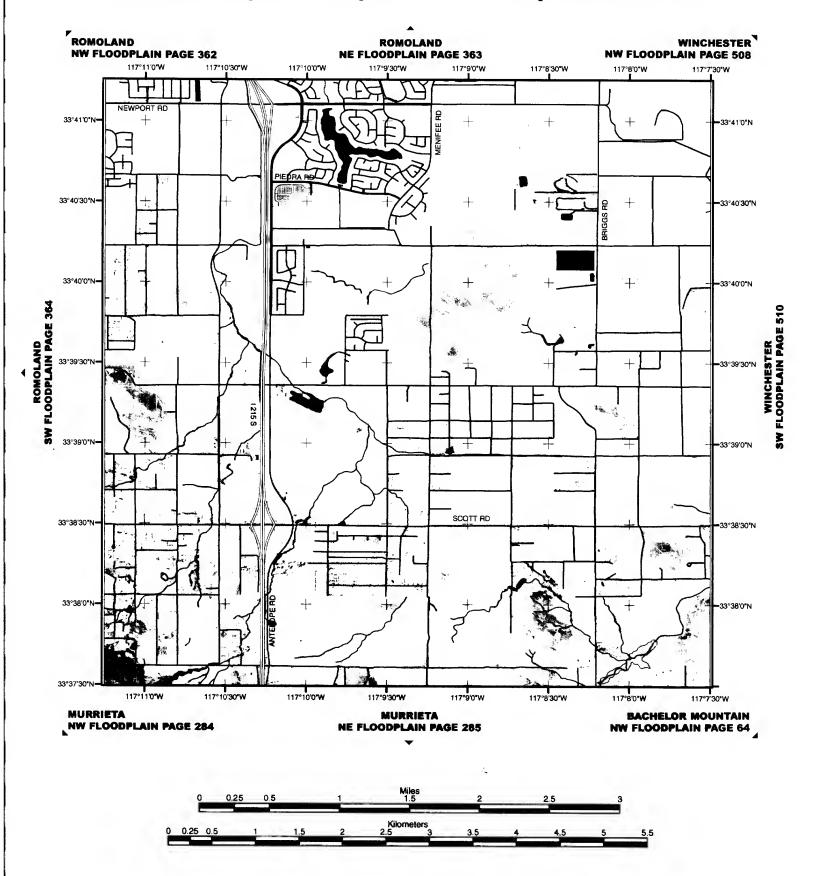
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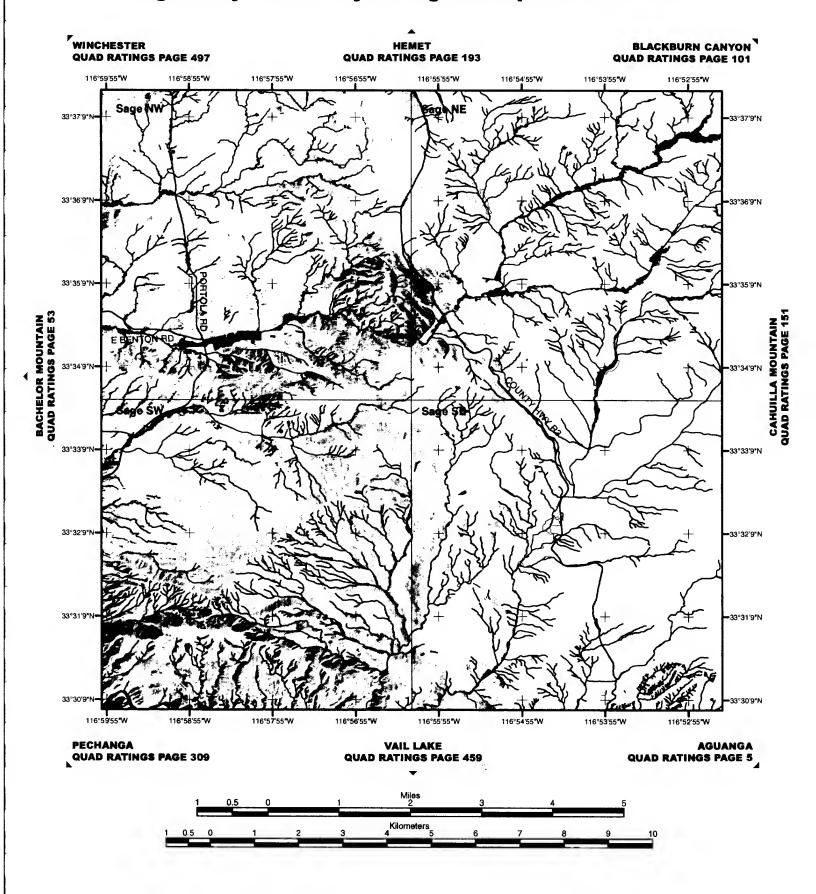
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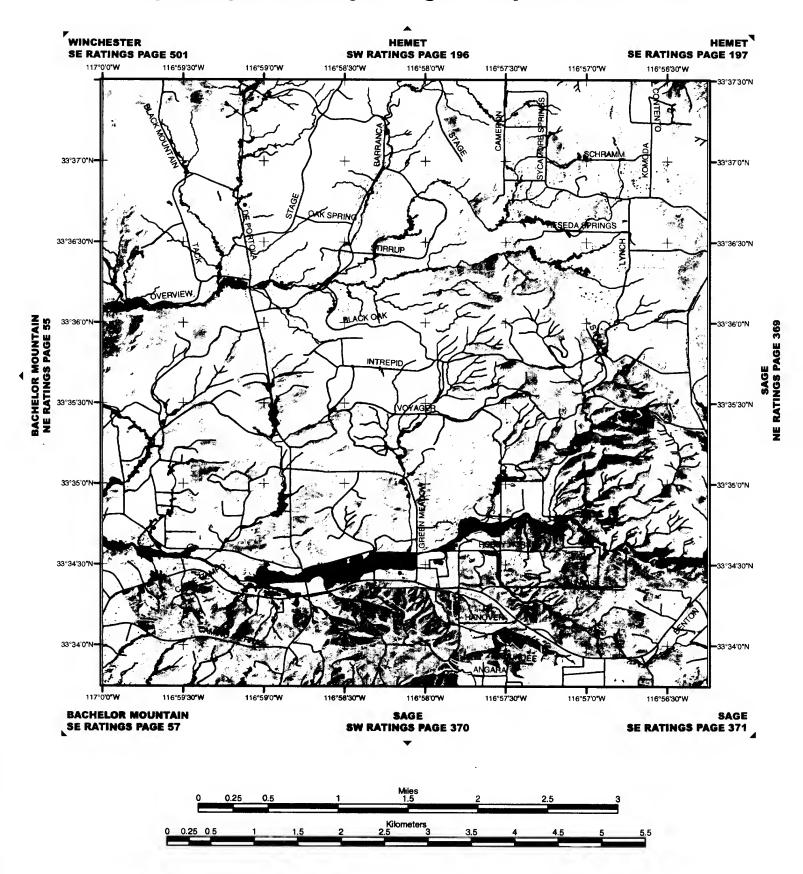
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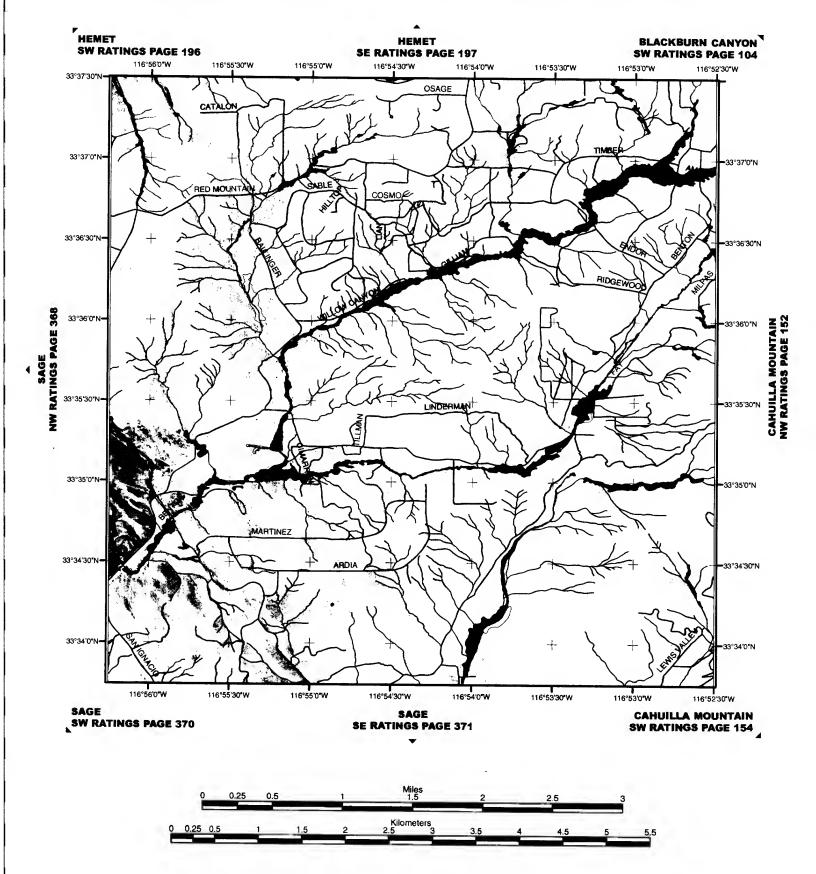
## Sage Quadrangle Regulatory Probability Ratings for Aquatic Resources



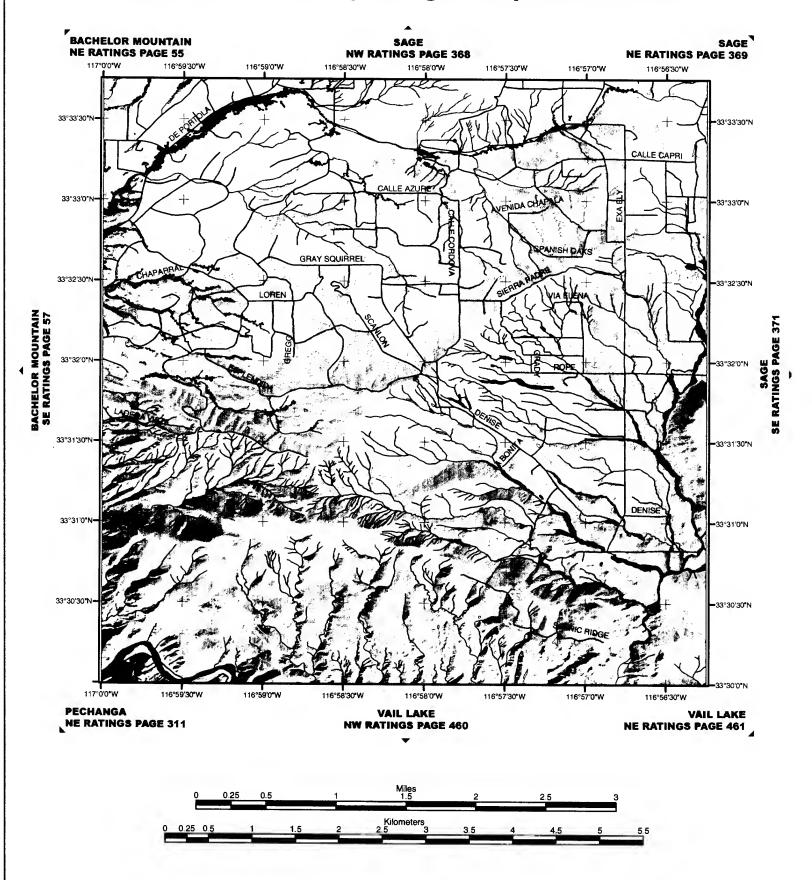
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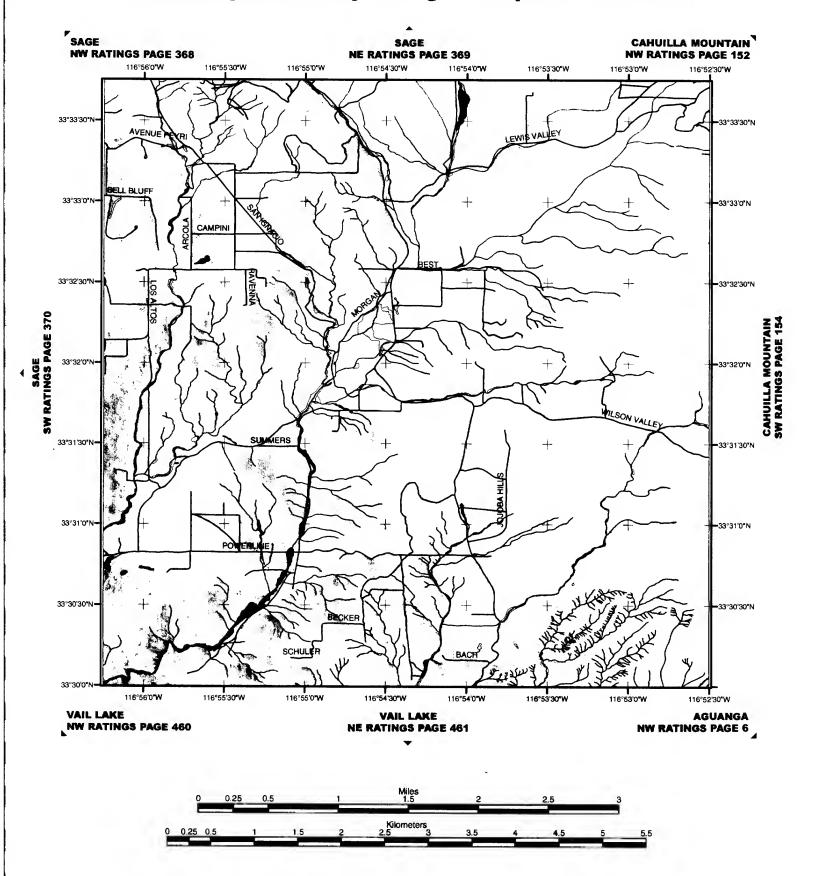
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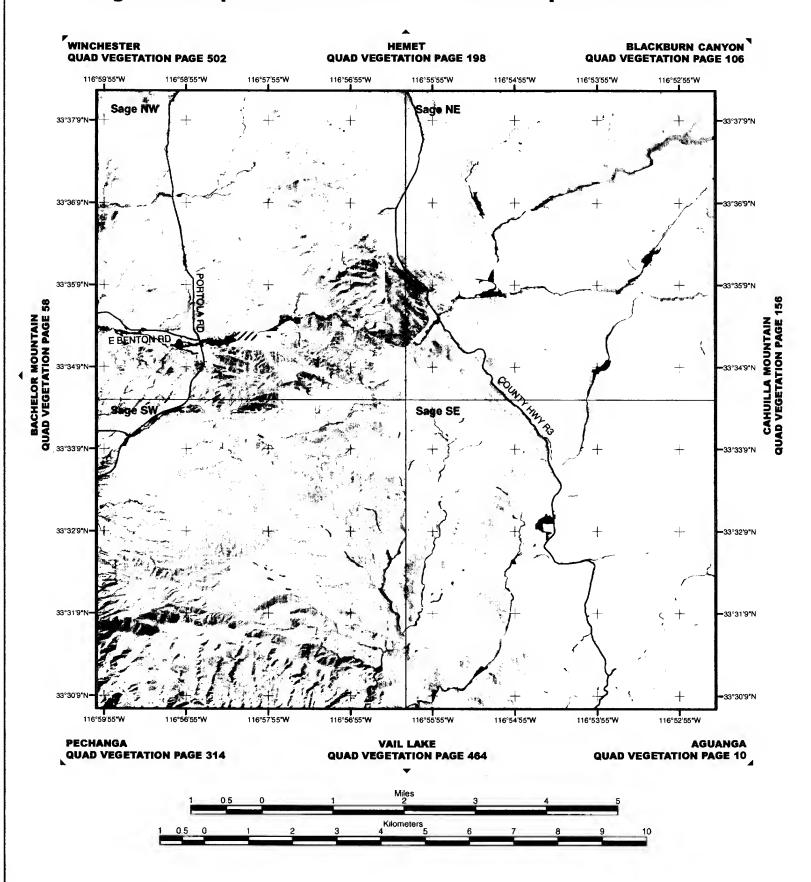
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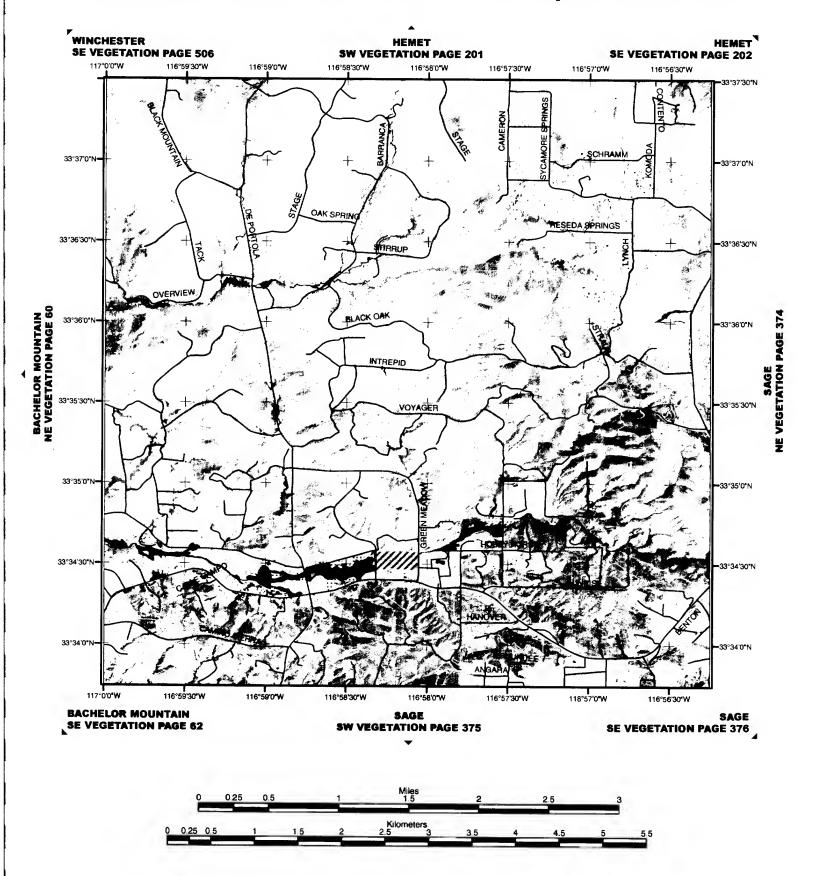
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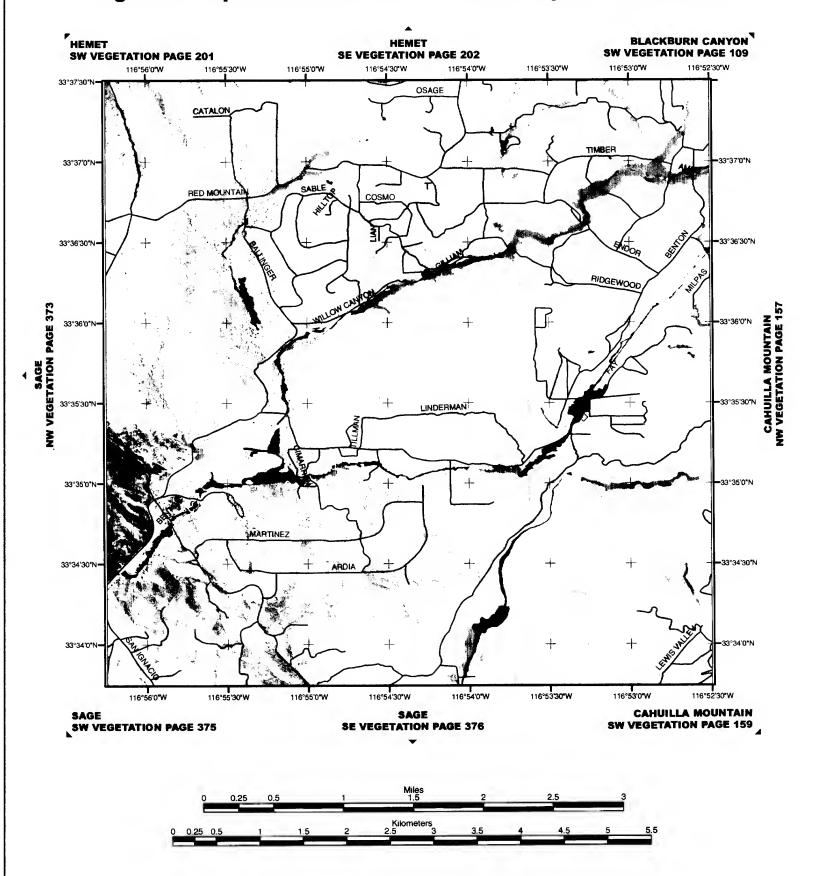
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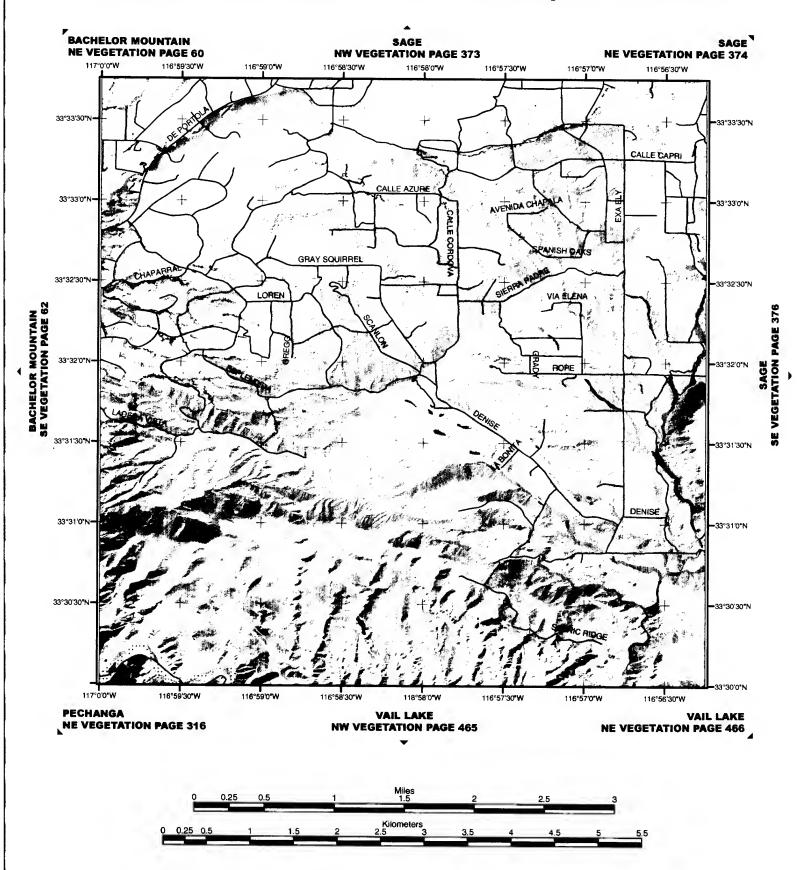
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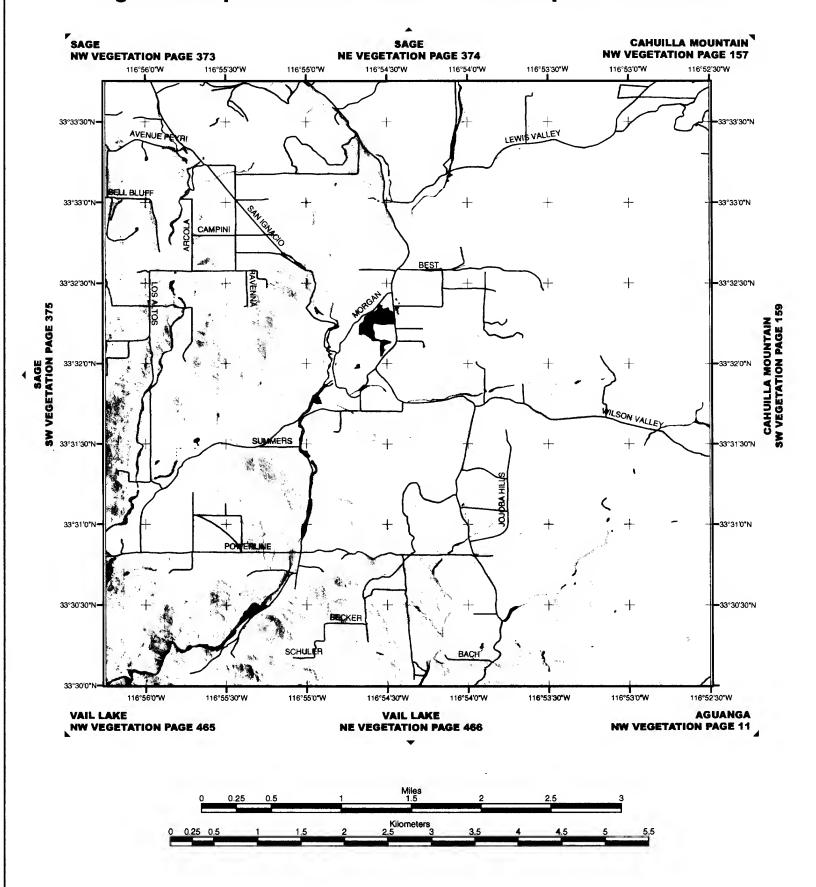
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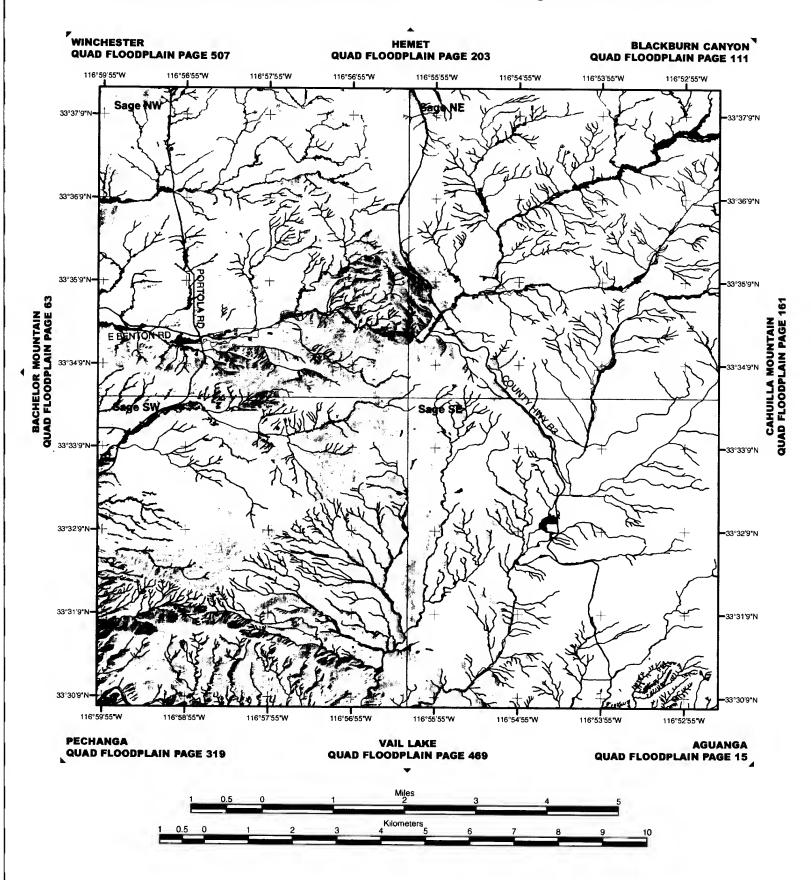
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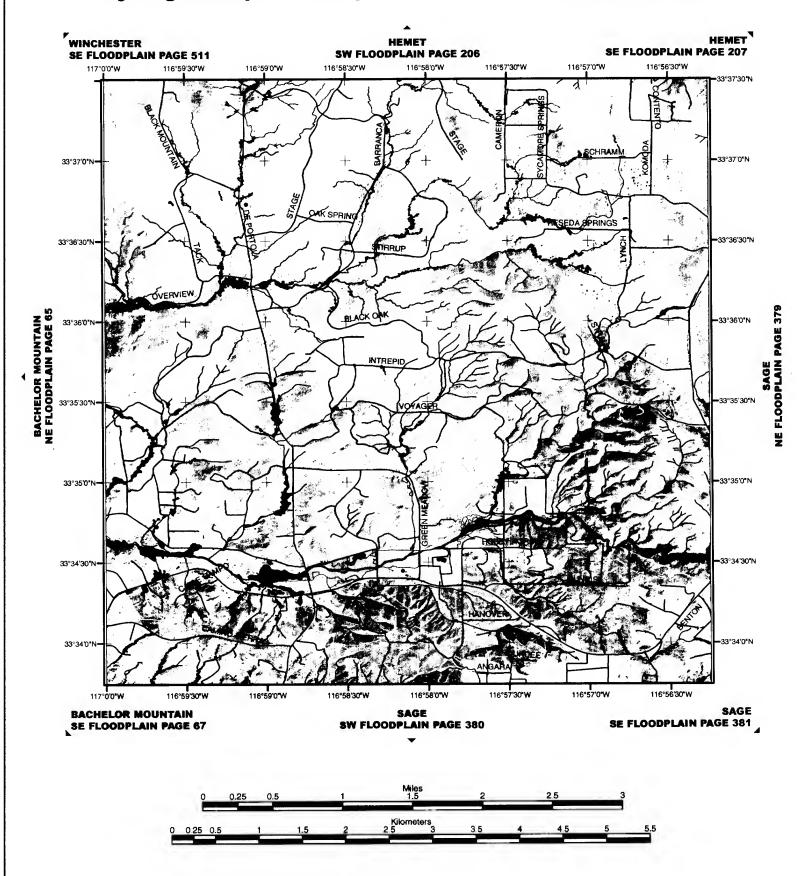
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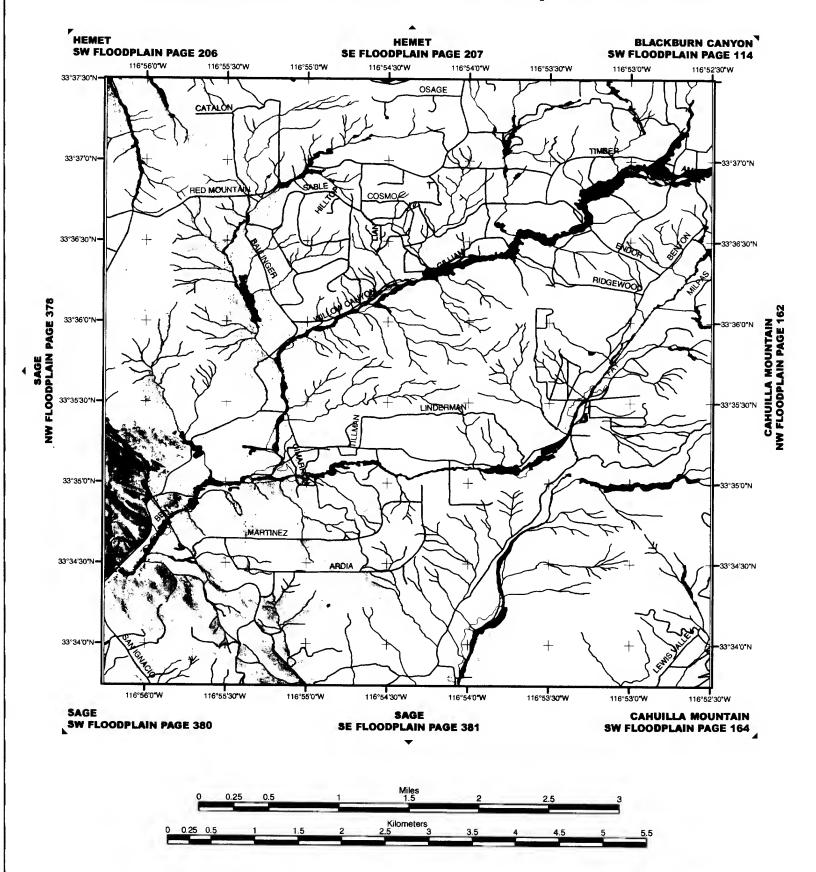
## Sage Quadrangle Hydrogeomorphic Floodplain Units for Aquatic Resources



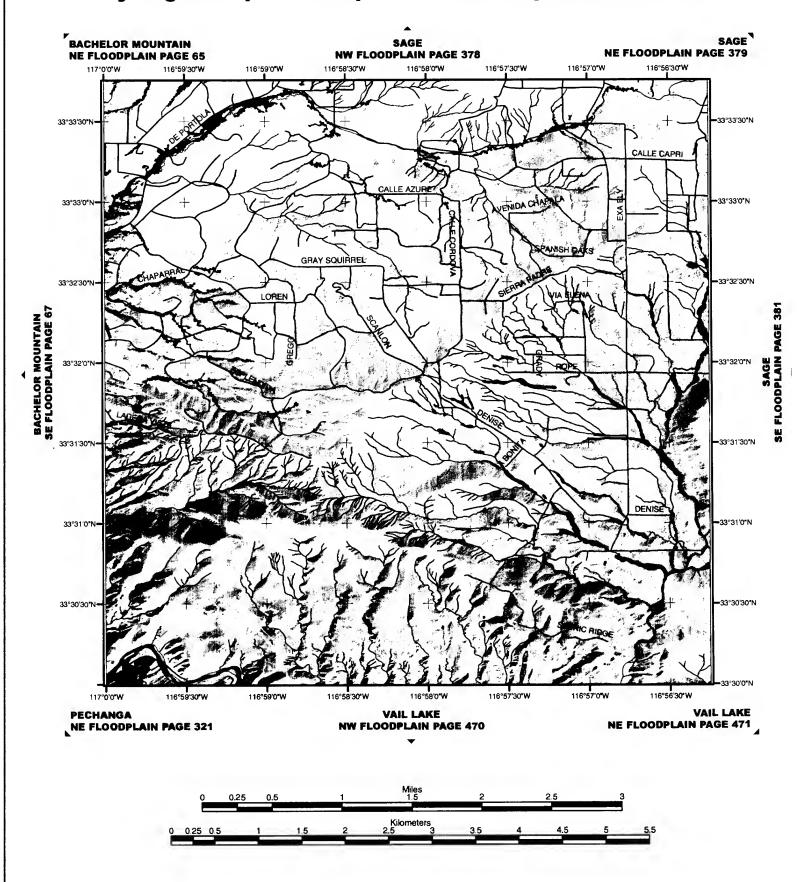
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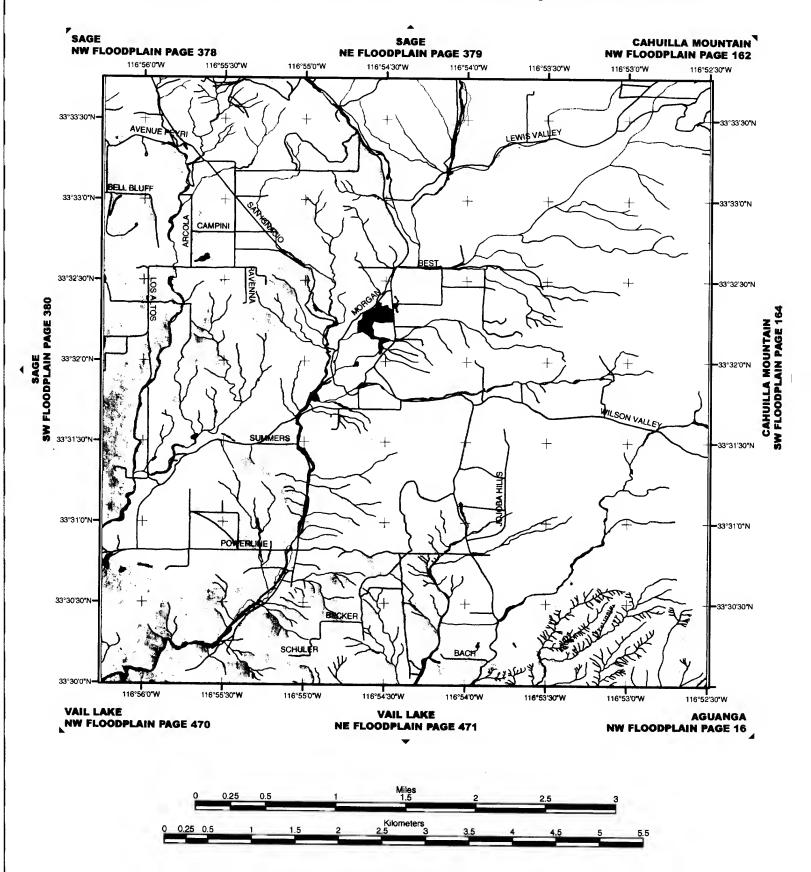
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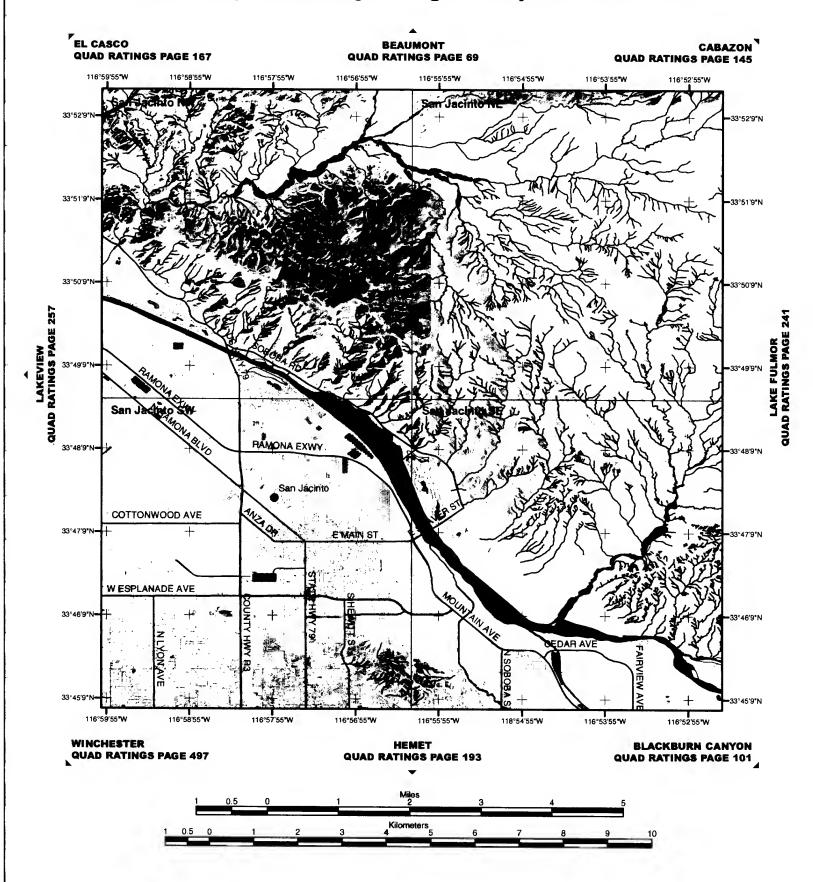
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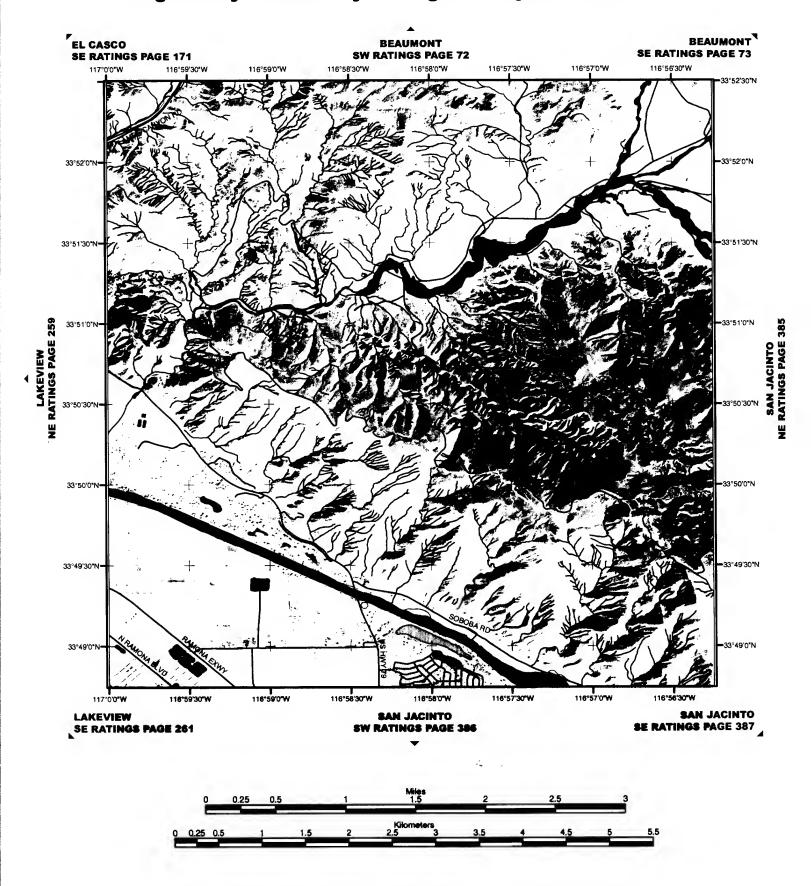
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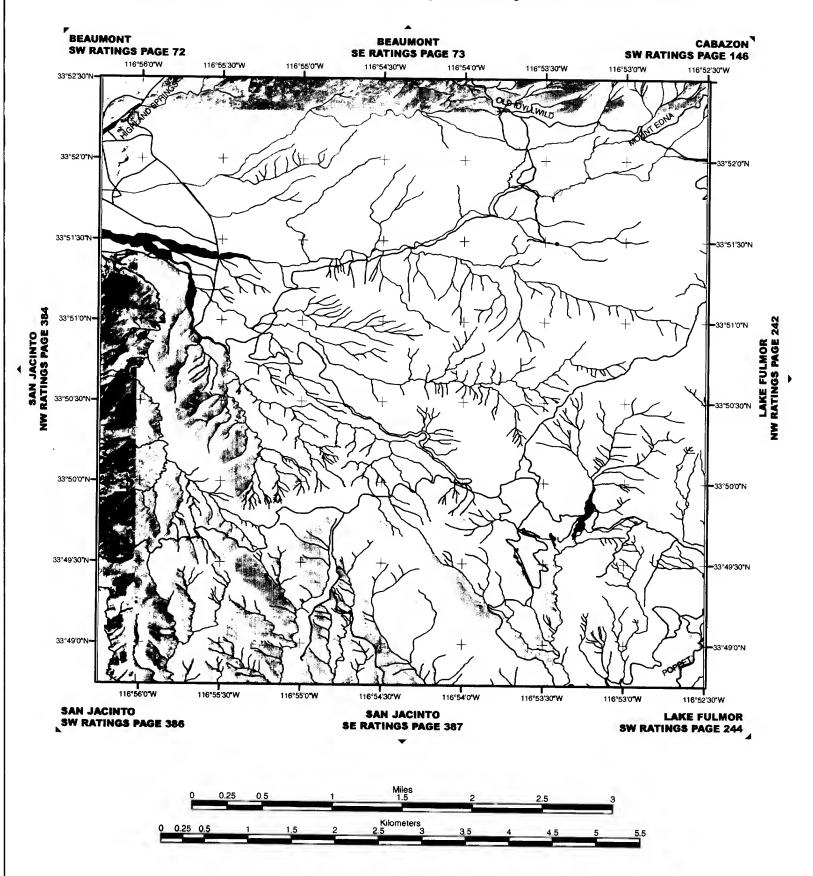
#### San Jacinto Quadrangle Regulatory Probability Ratings for Aquatic Resources



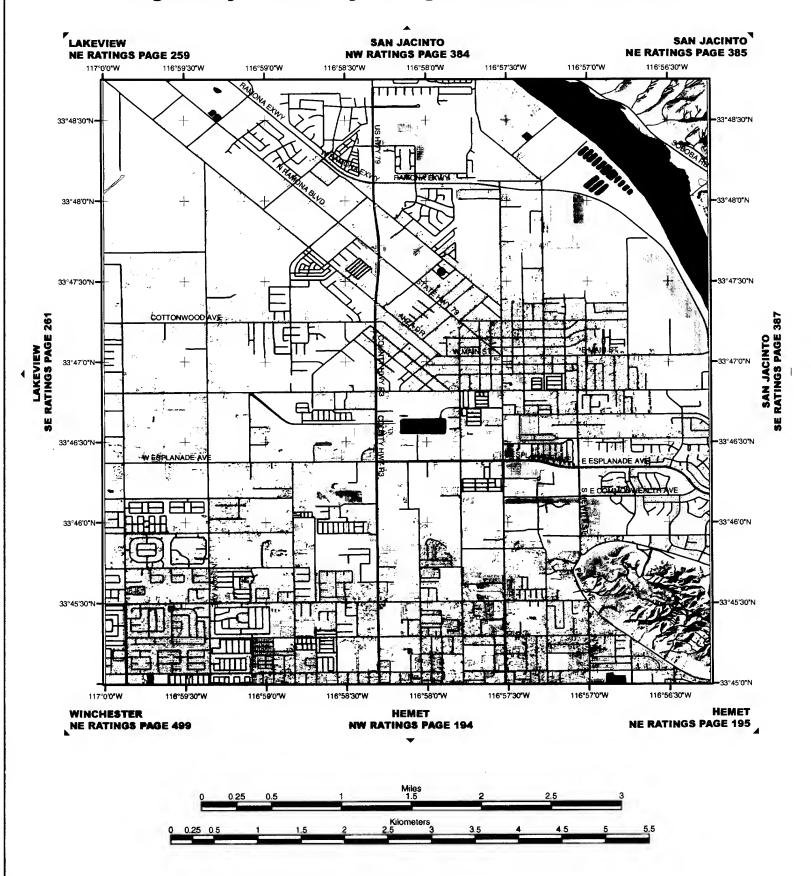
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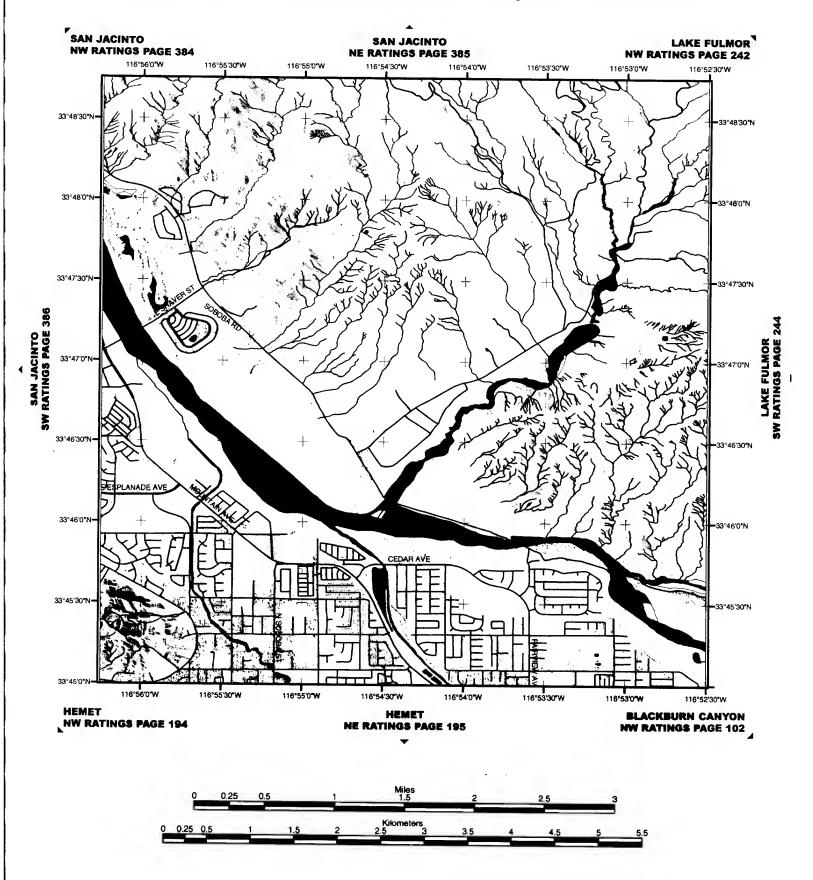
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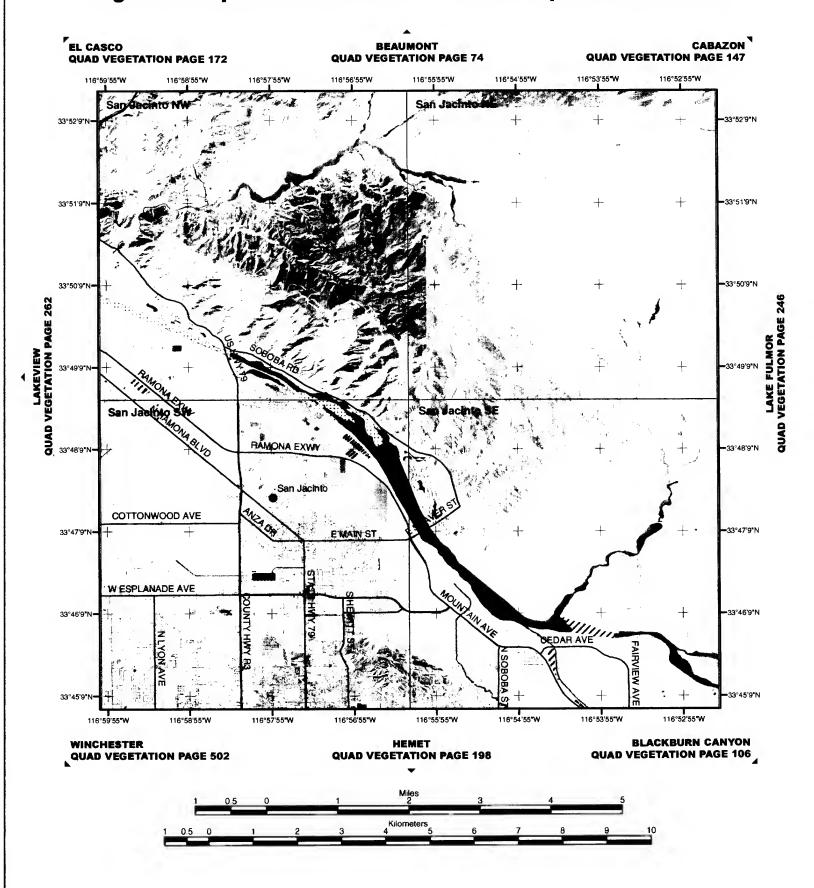
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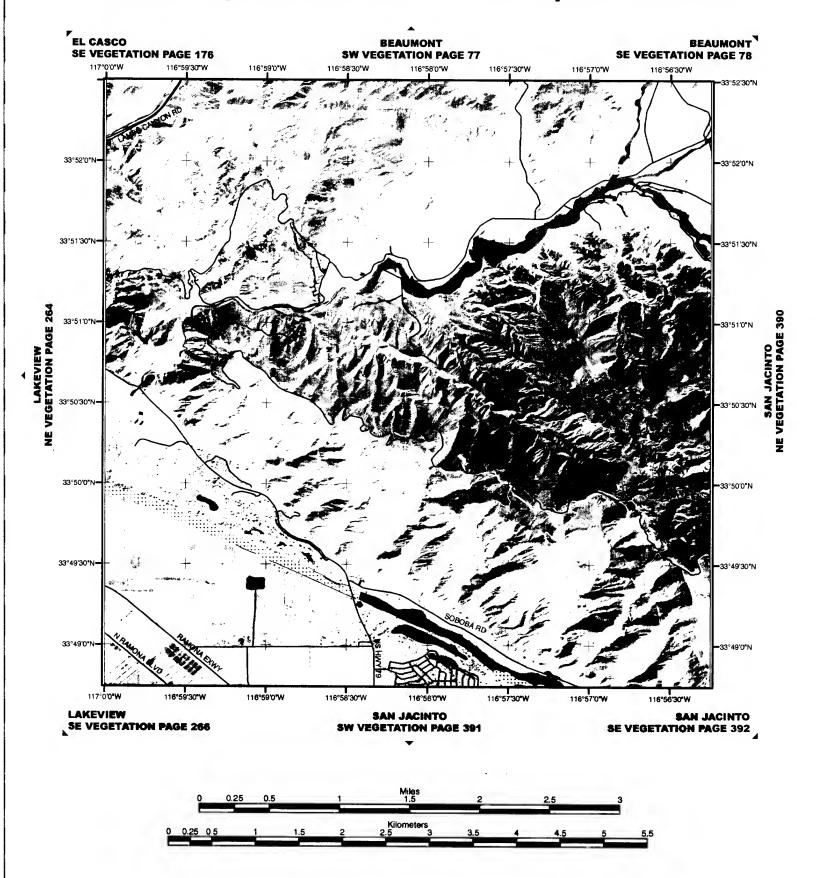
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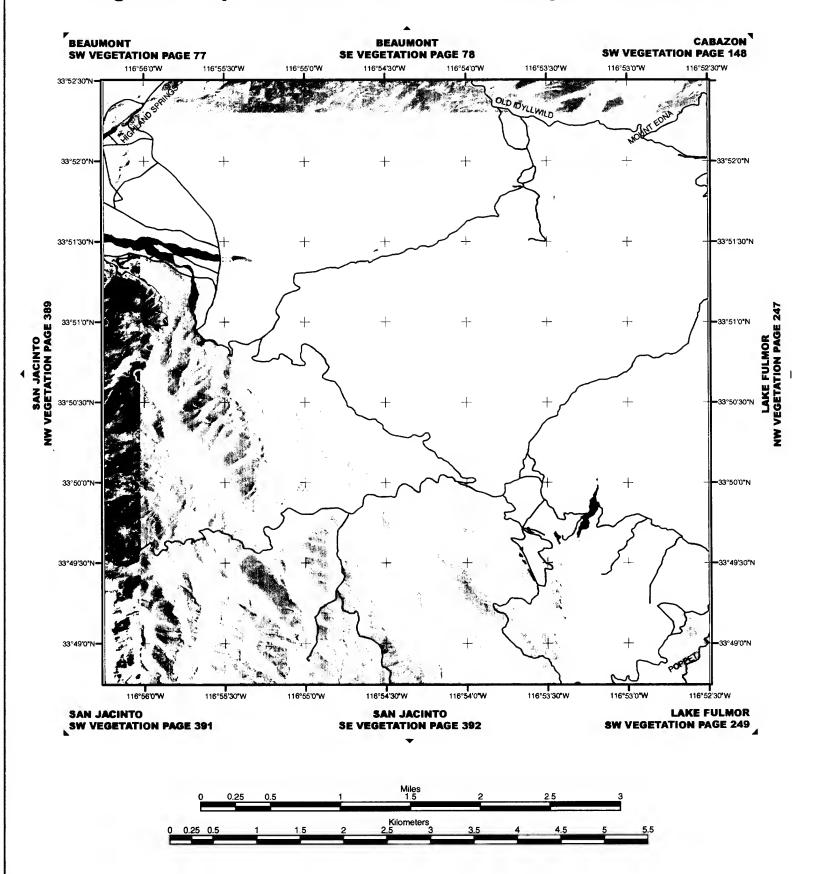
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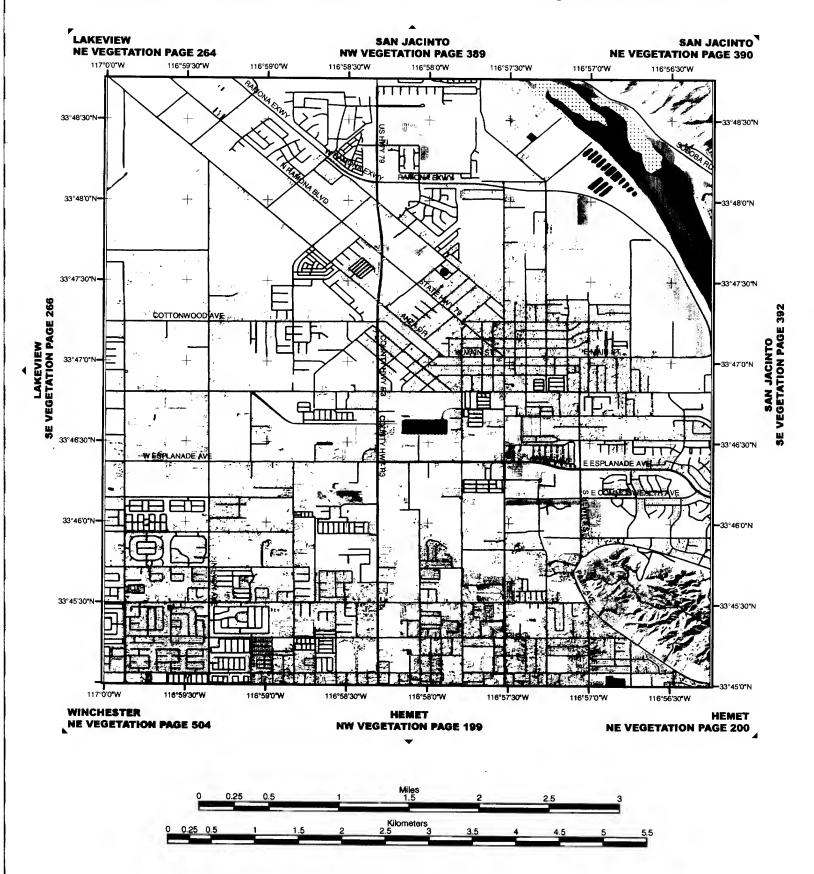
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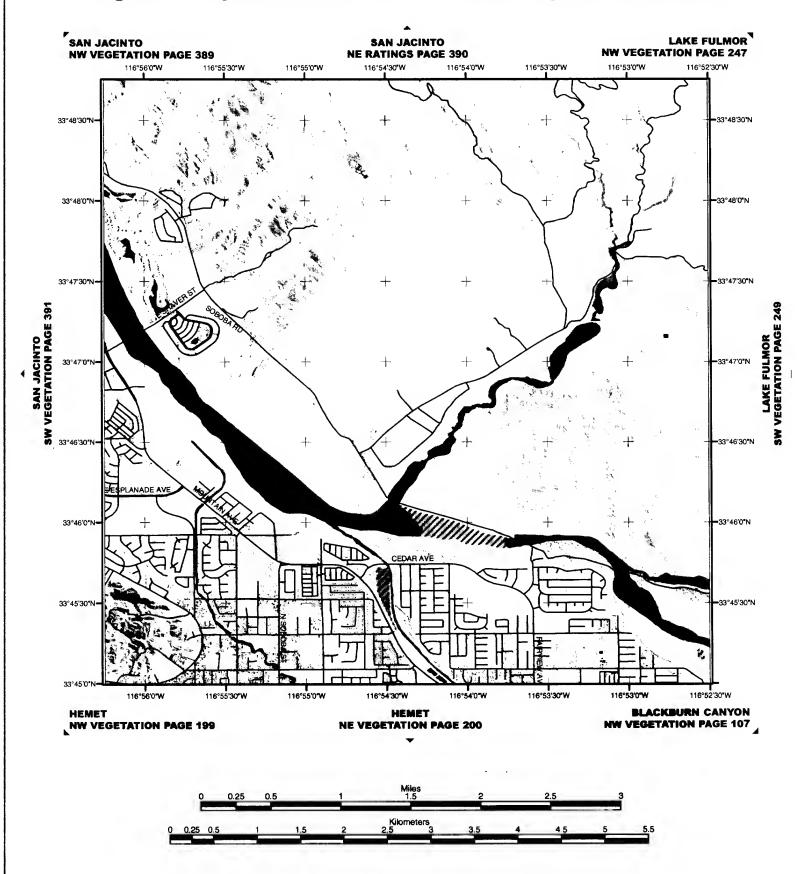
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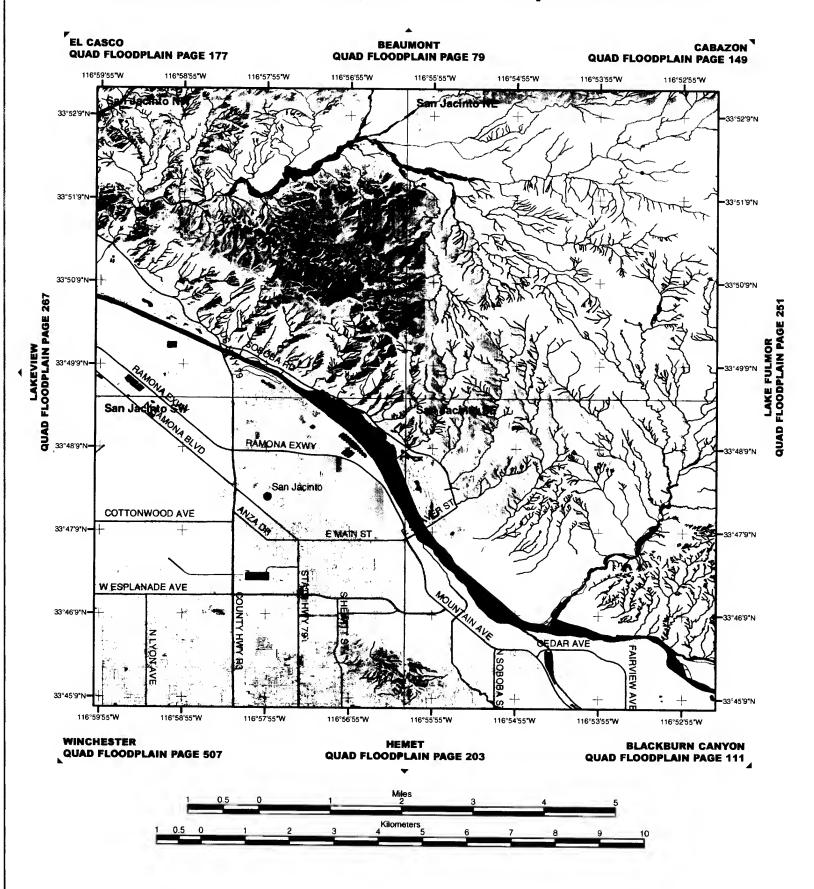
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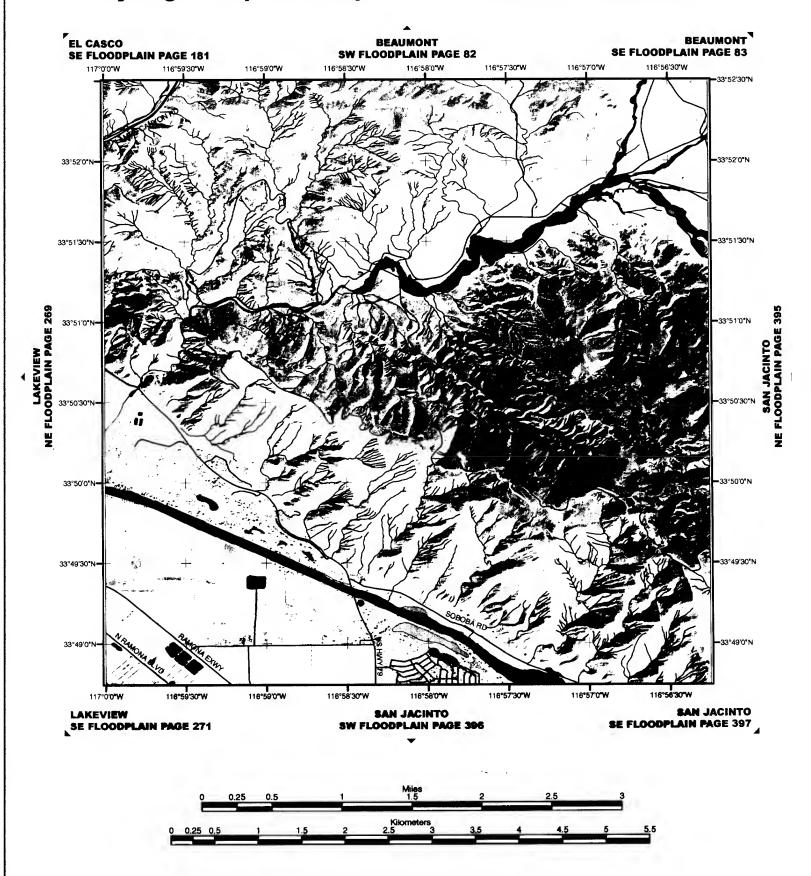
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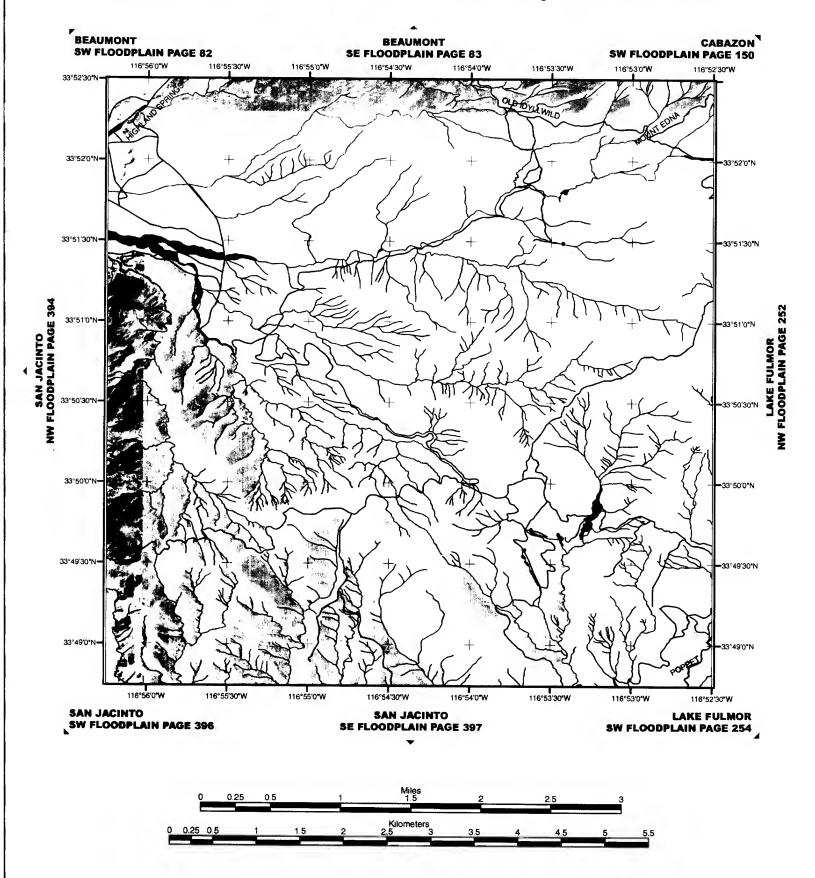
## San Jacinto Quadrangle Hydrogeomorphic Floodplain Units for Aquatic Resources



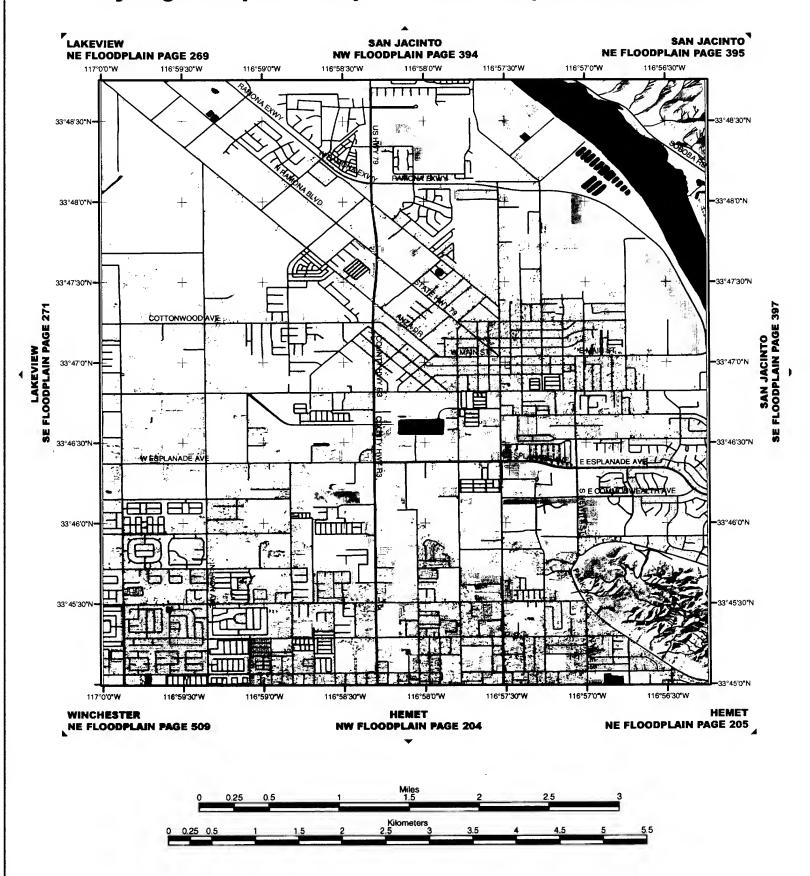
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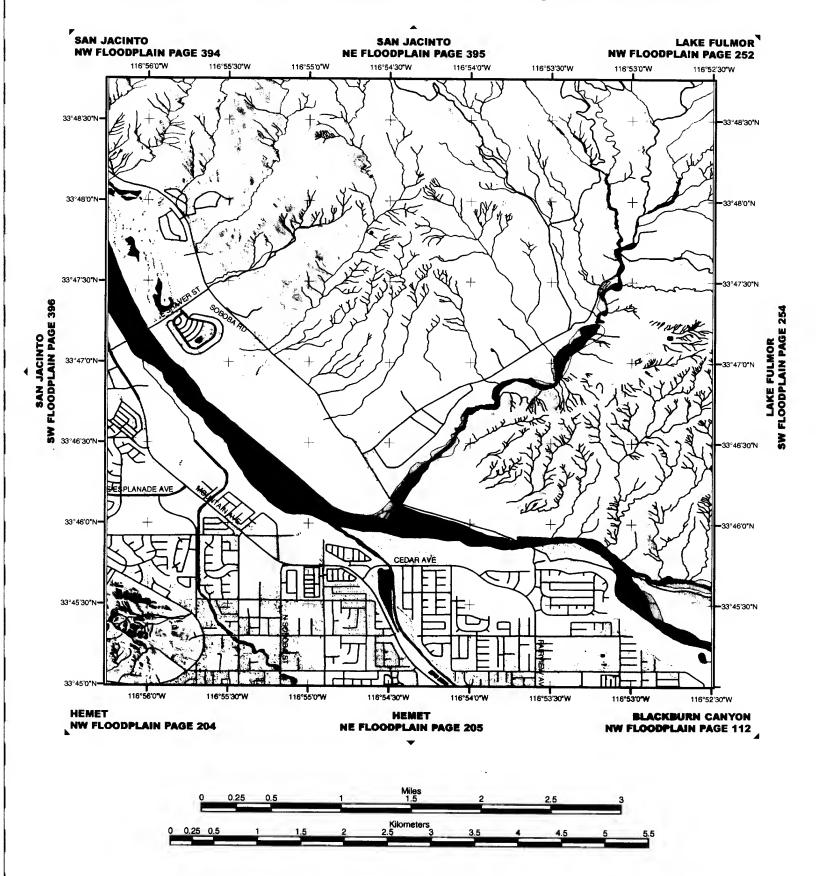
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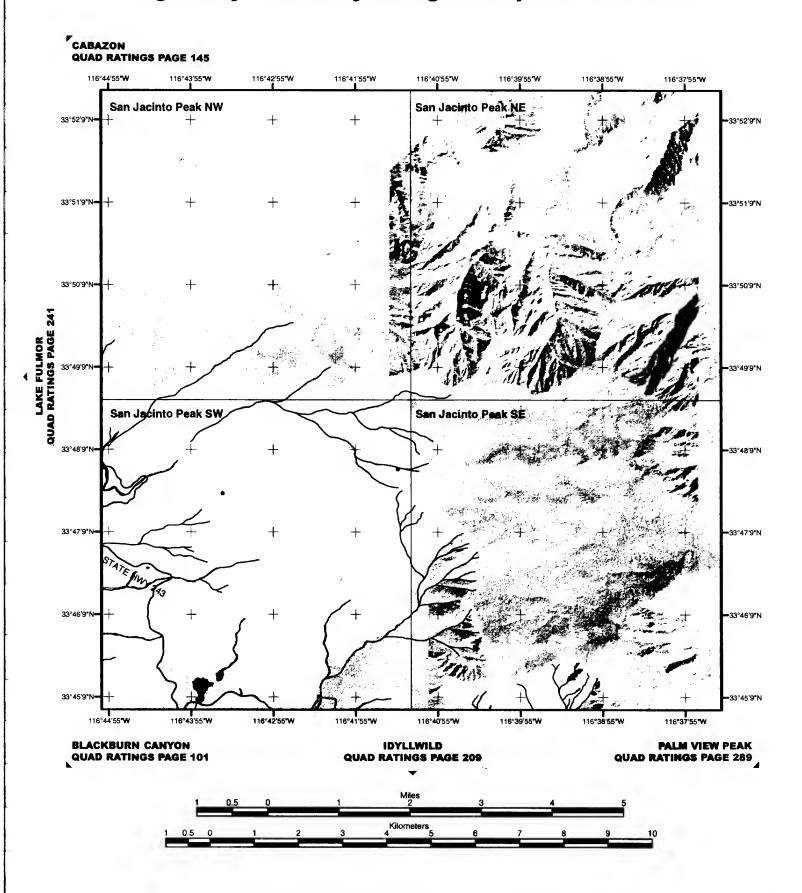
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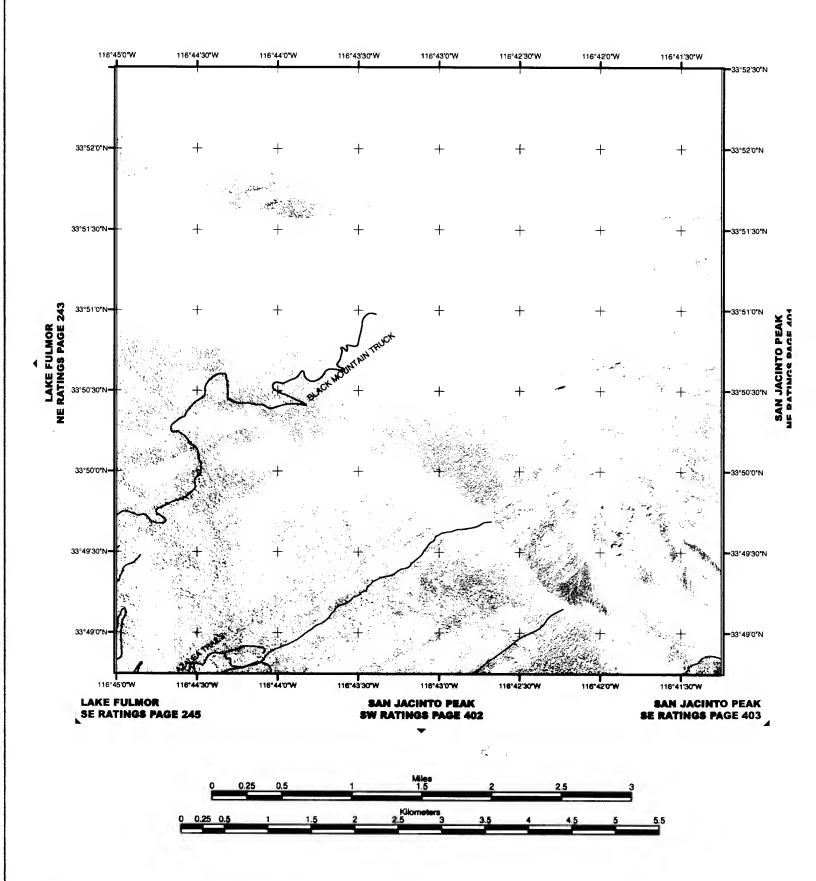
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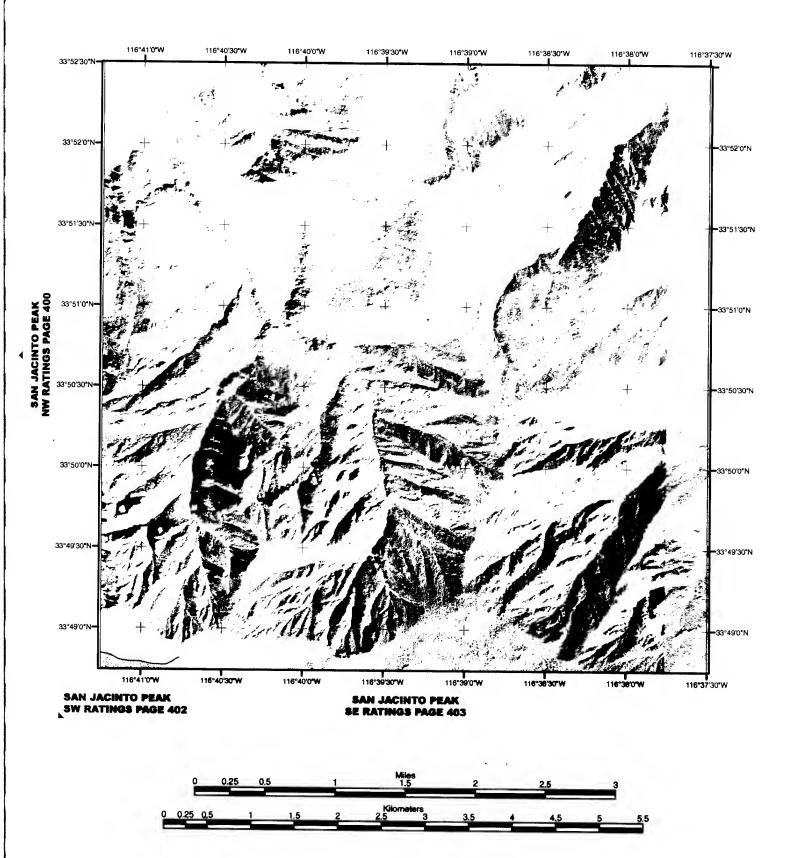
#### San Jacinto Peak Quadrangle Regulatory Probability Ratings for Aquatic Resources



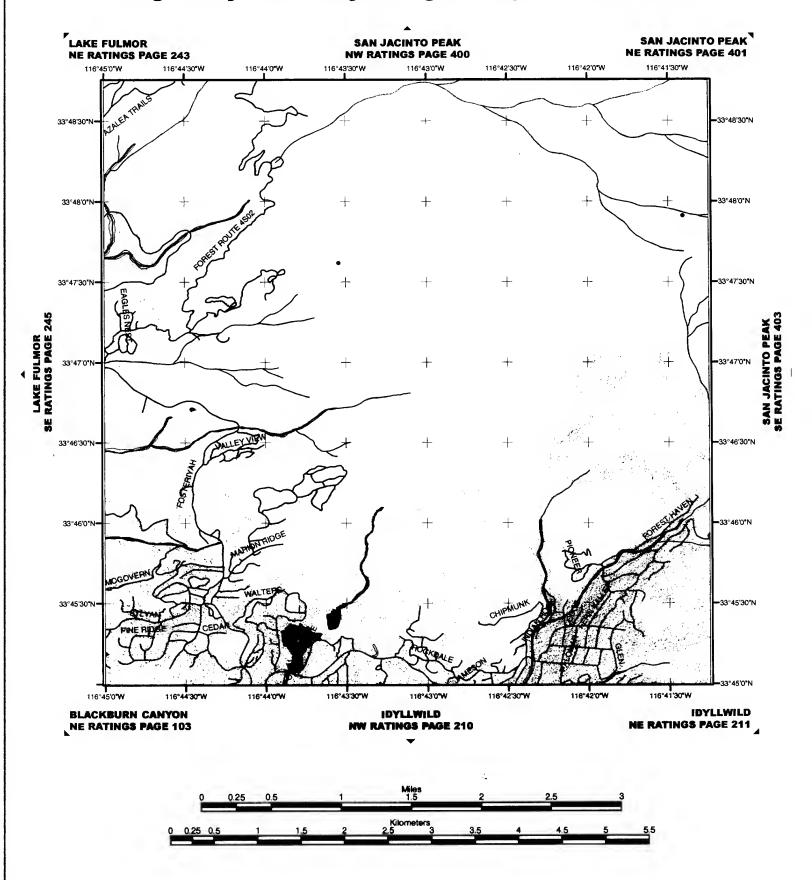
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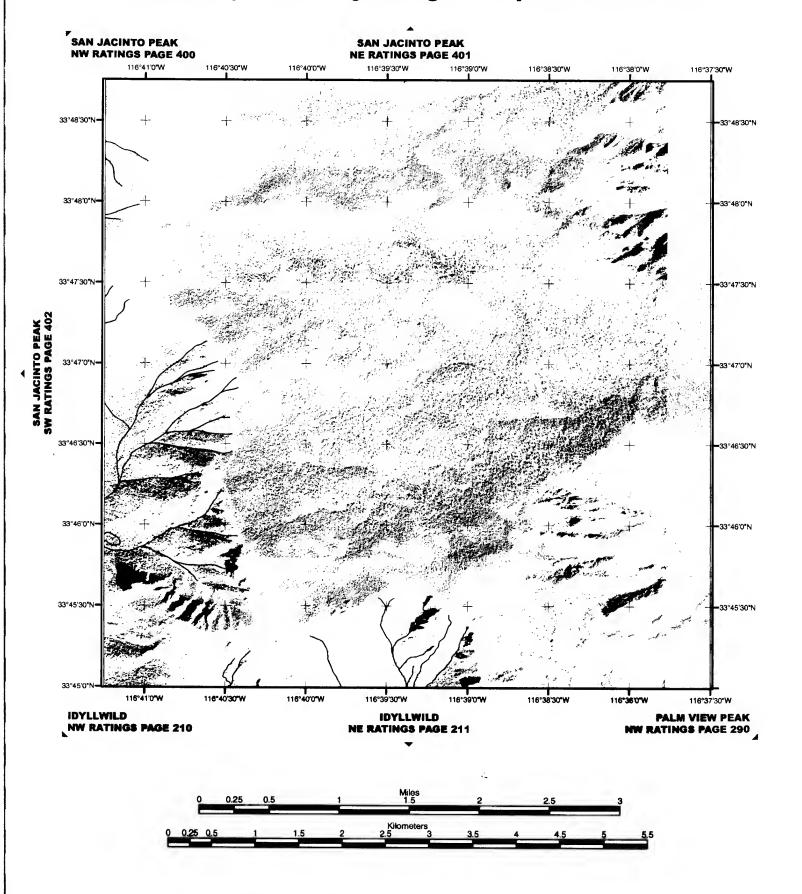
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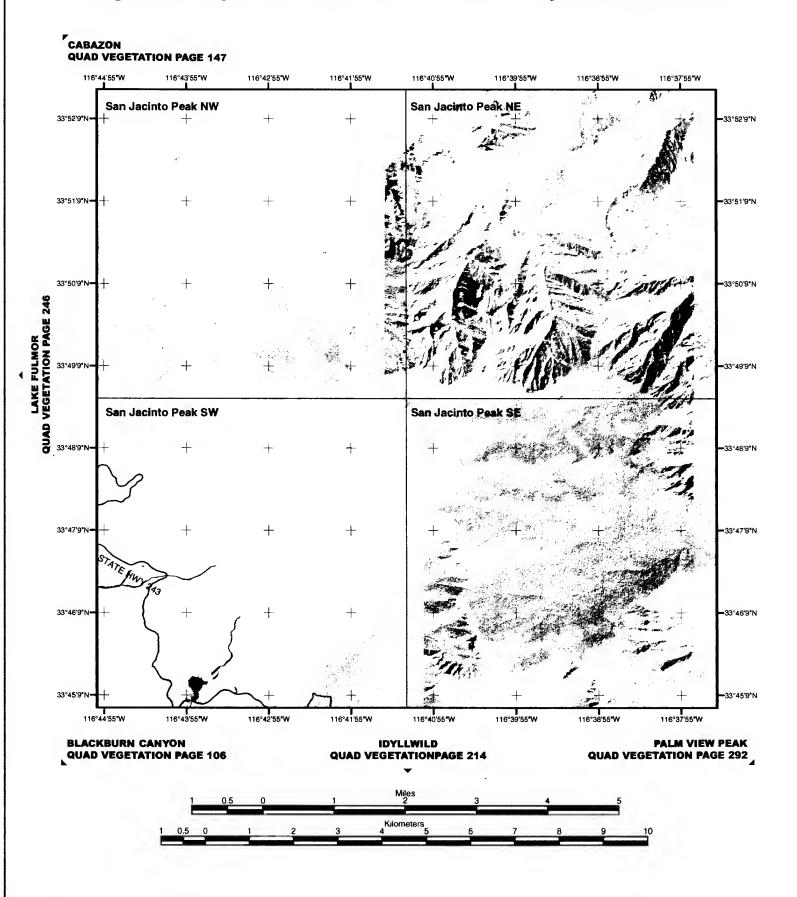
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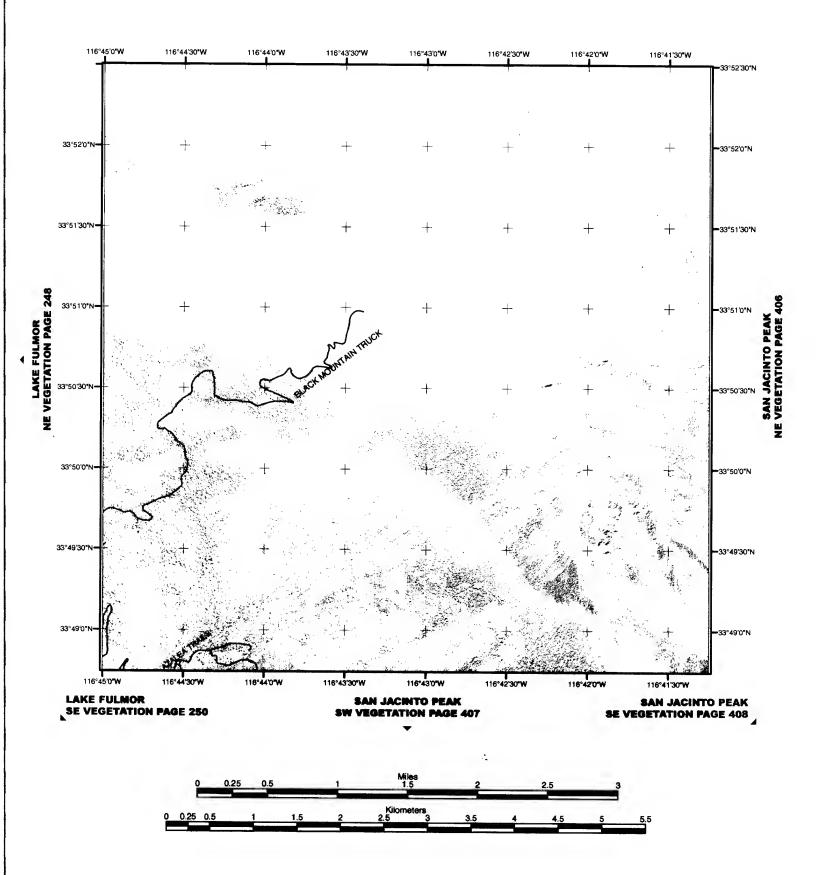
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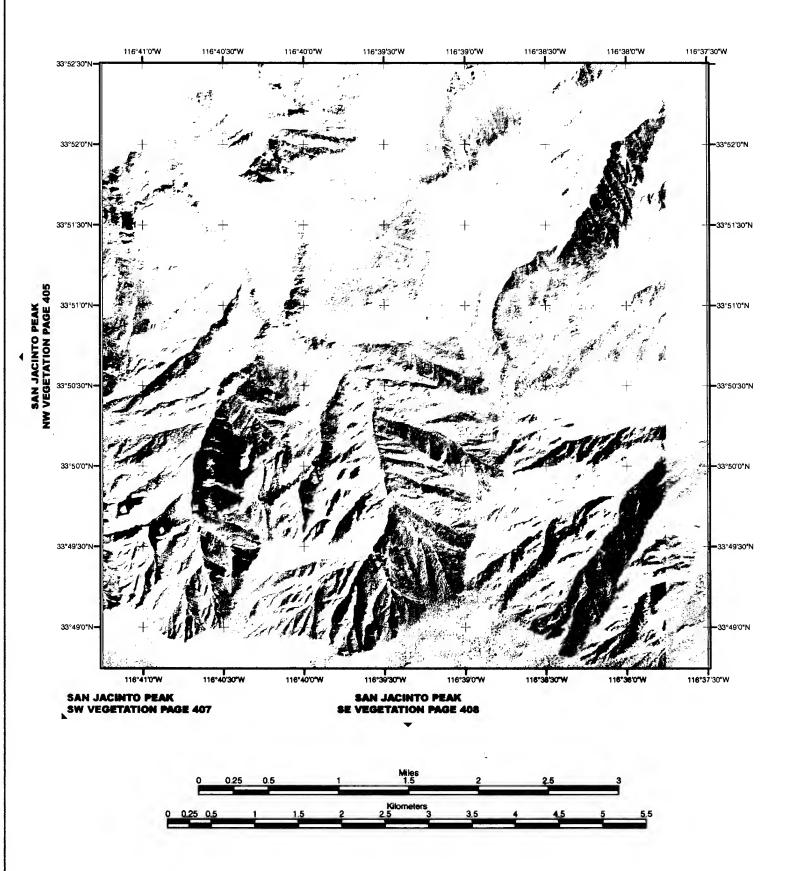
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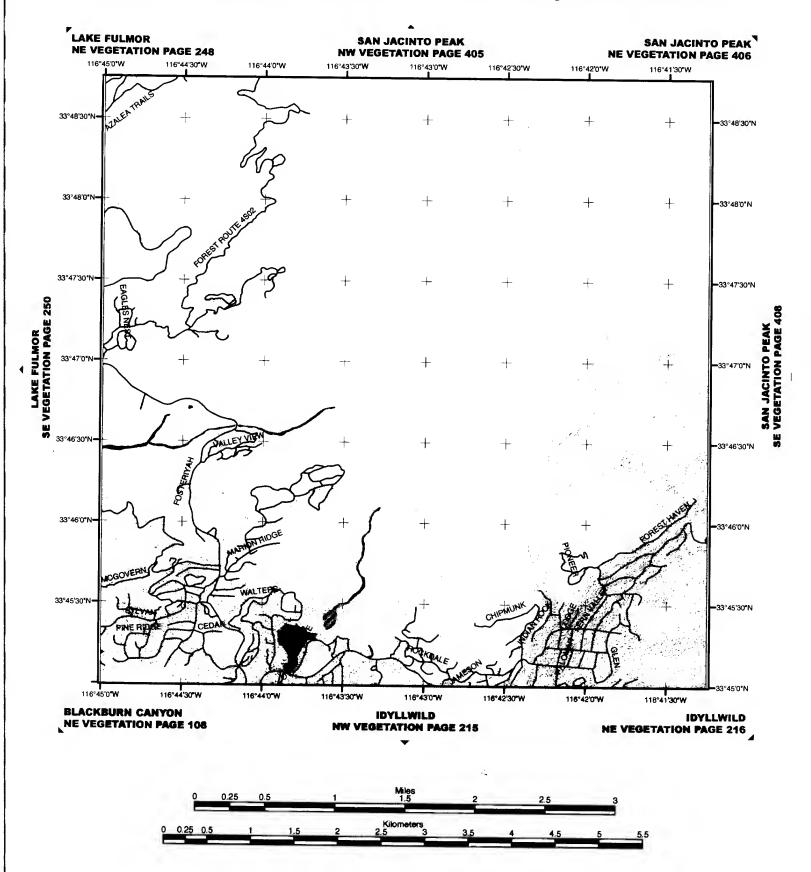
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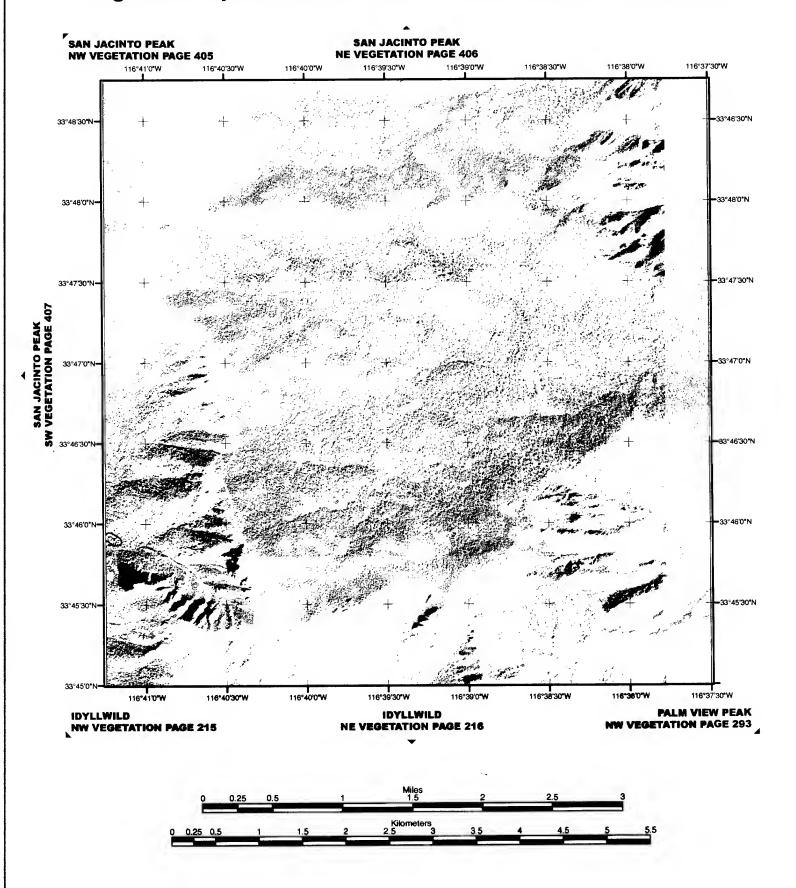
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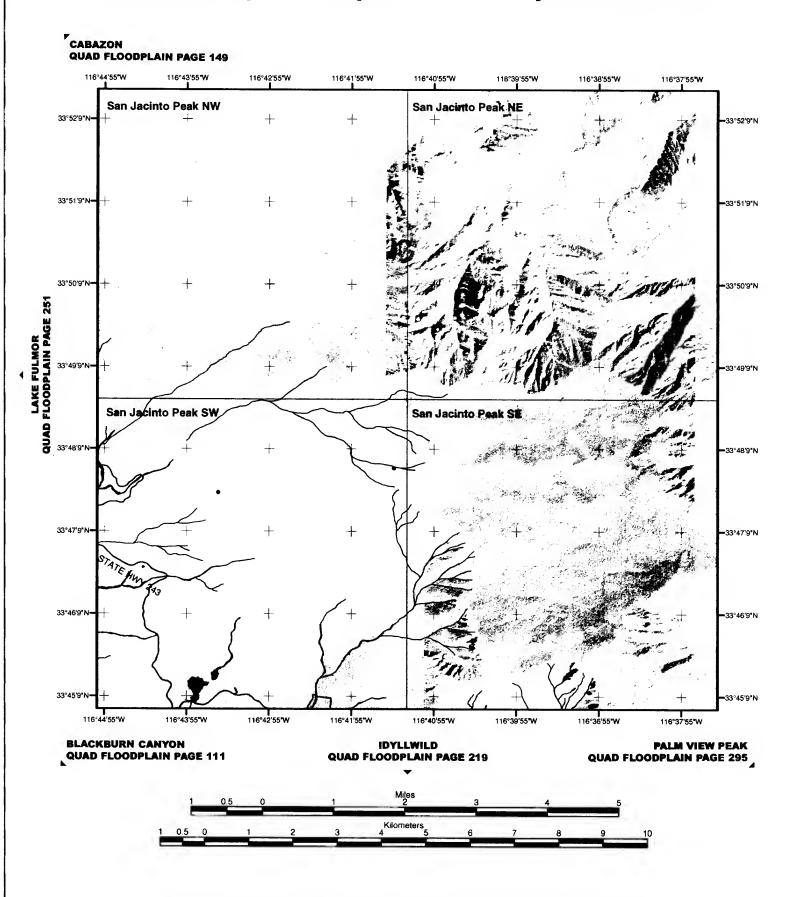
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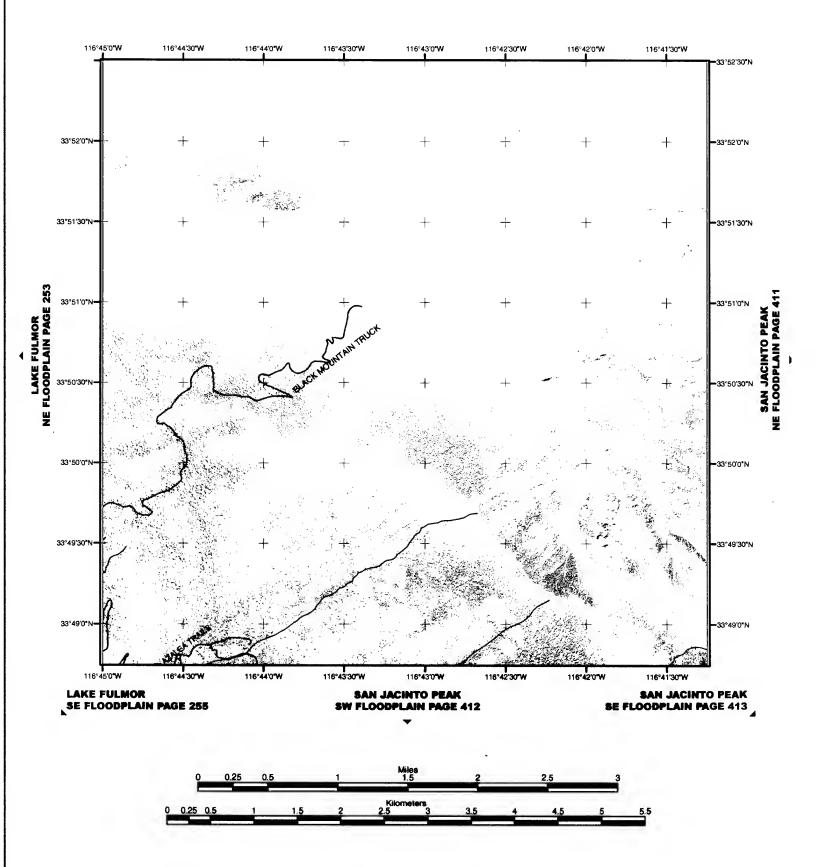
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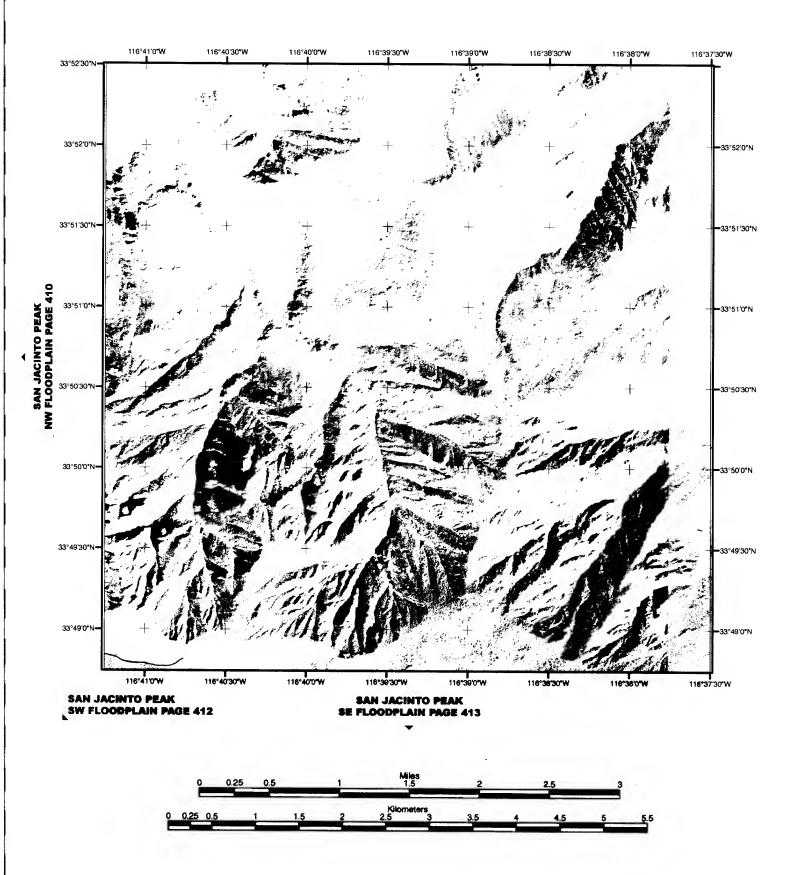
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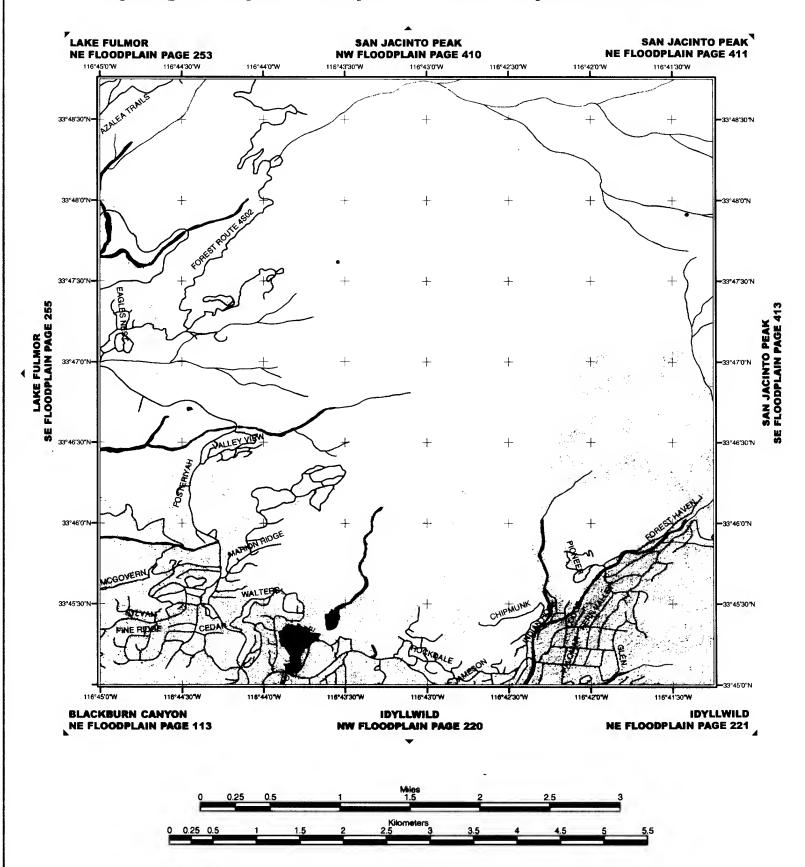
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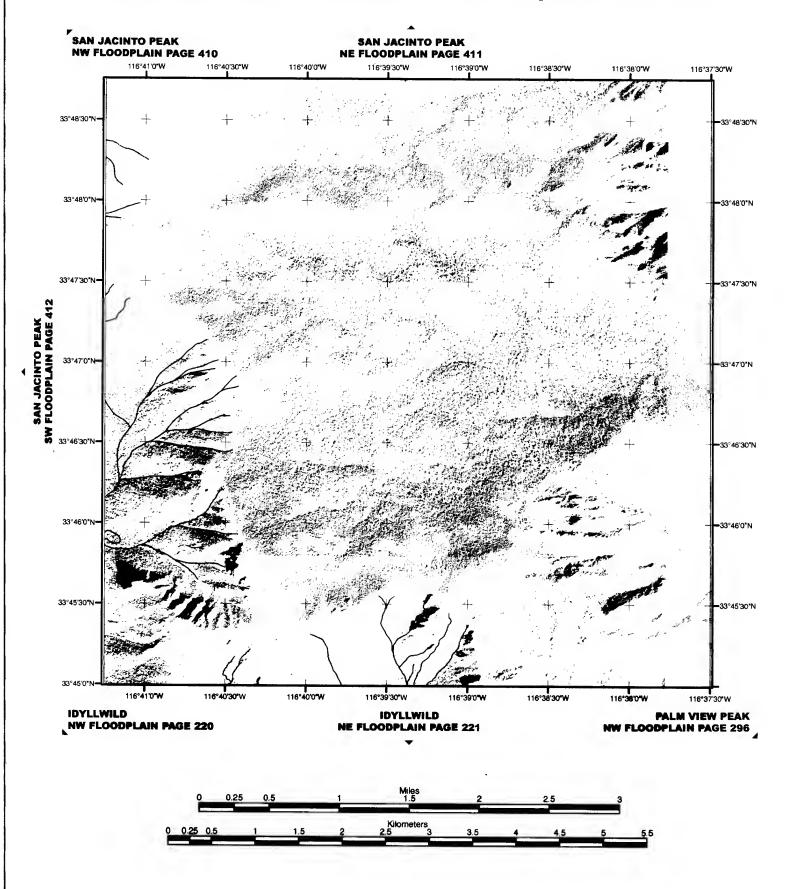
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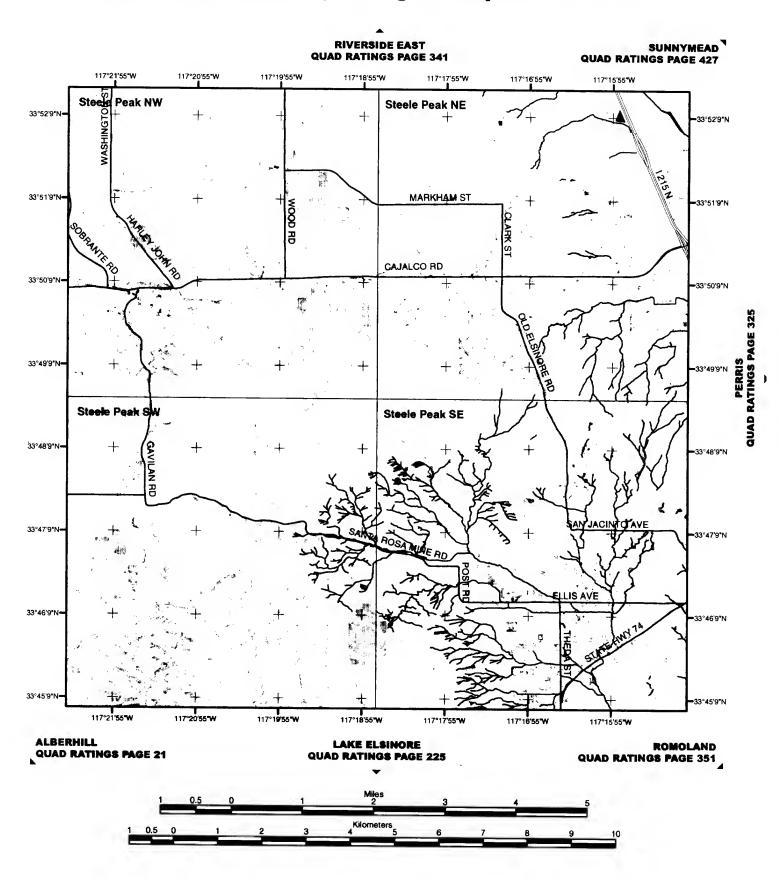
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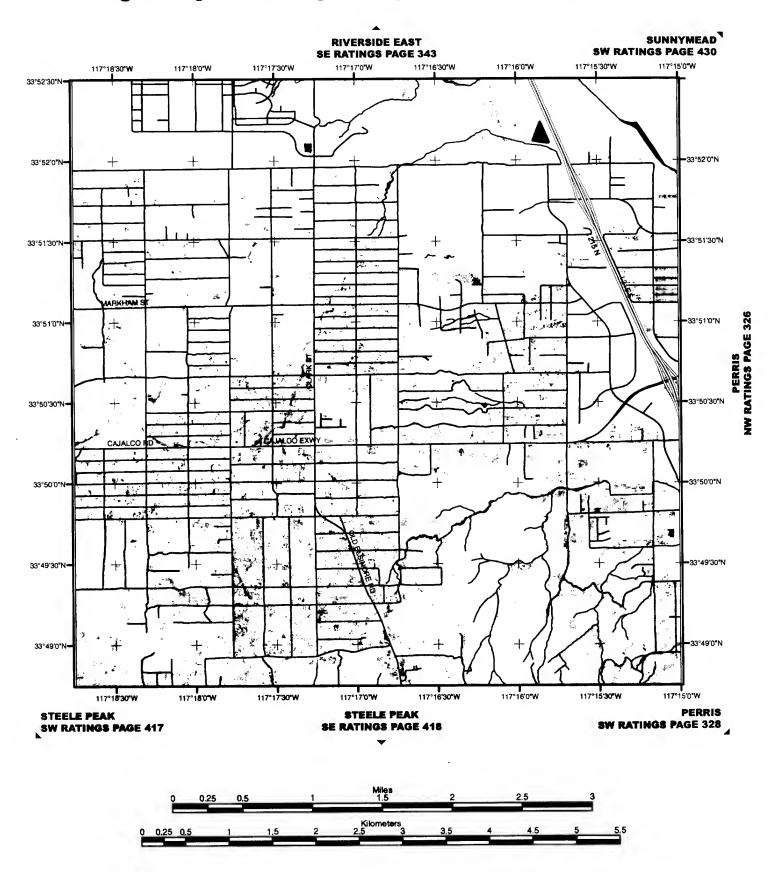
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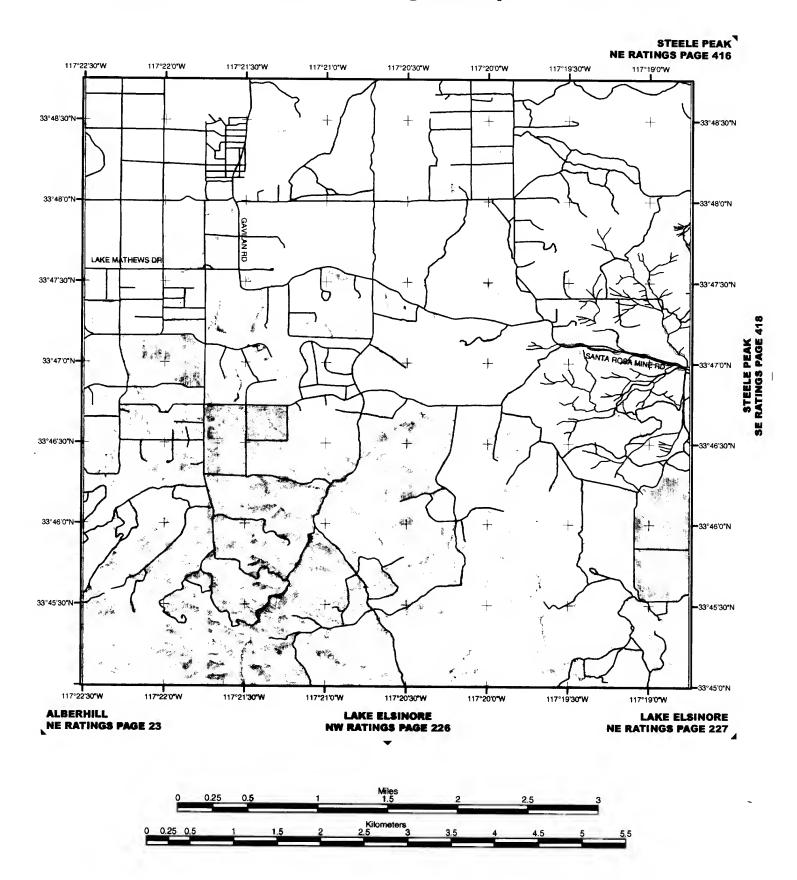
### Steele Peak Quadrangle Regulatory Probability Ratings for Aquatic Resources



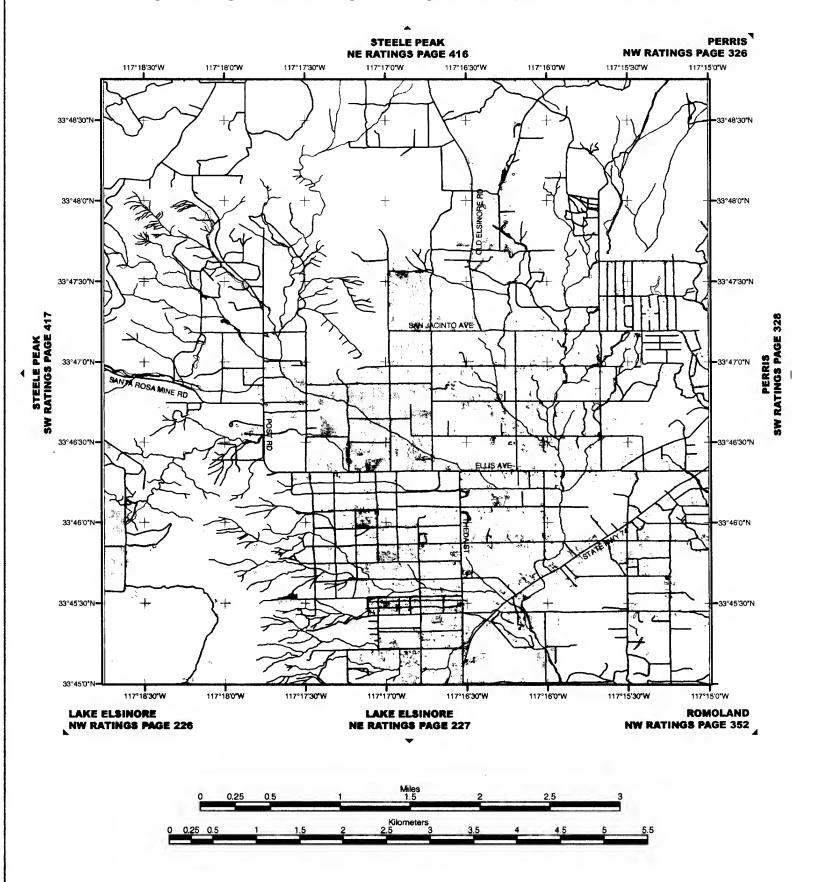
## Steele Peak North East Quarter-Quadrangle Regulatory Probability Ratings for Aquatic Resources



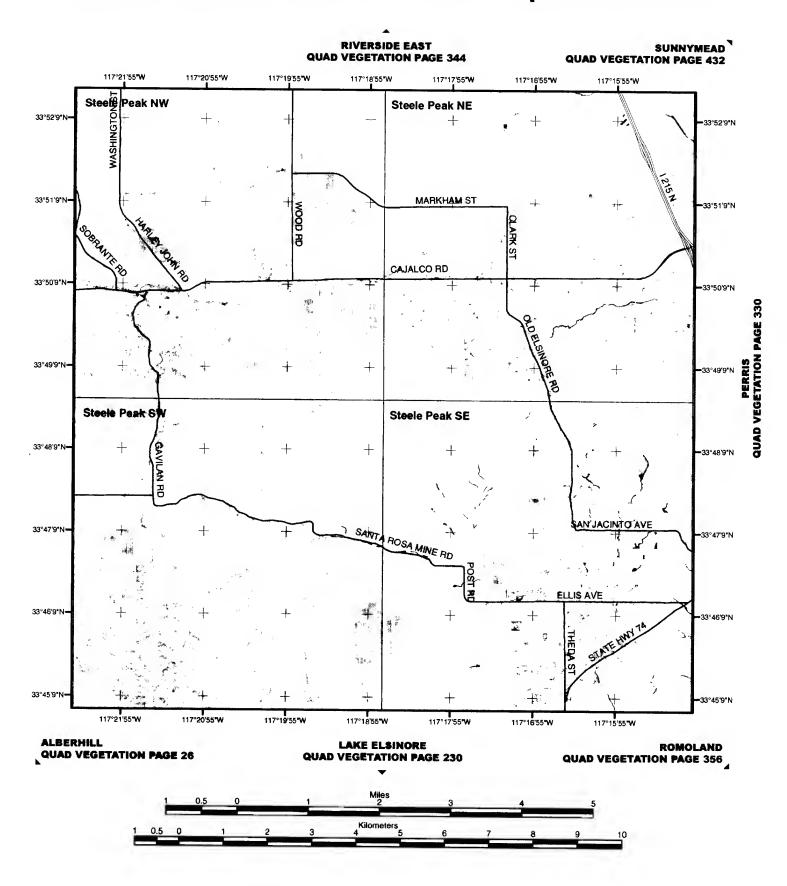
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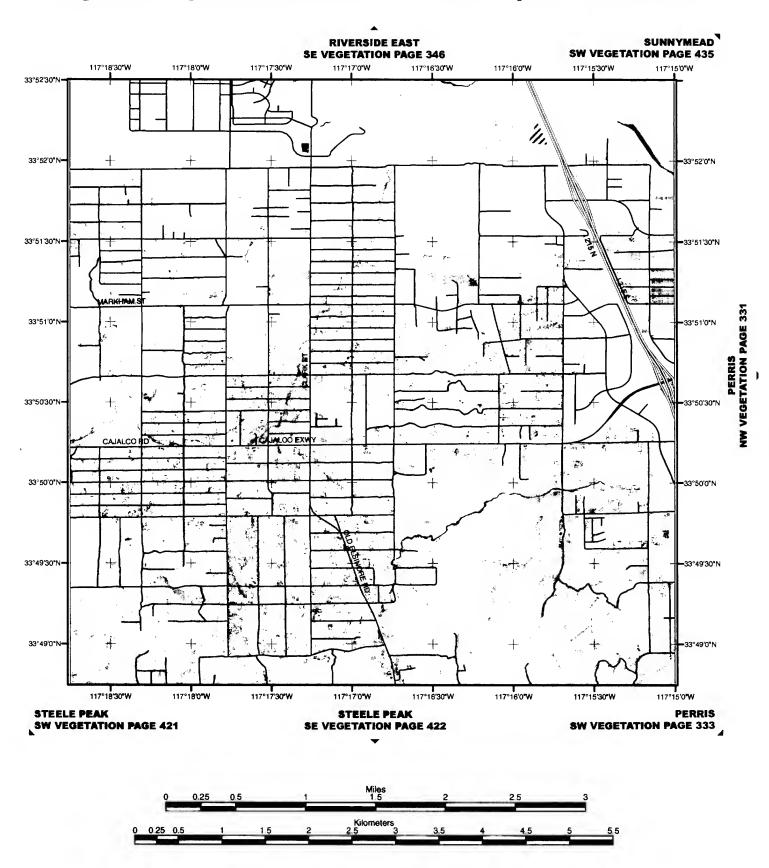
### Steele Peak South East Quarter-Quadrangle Regulatory Probability Ratings for Aquatic Resources



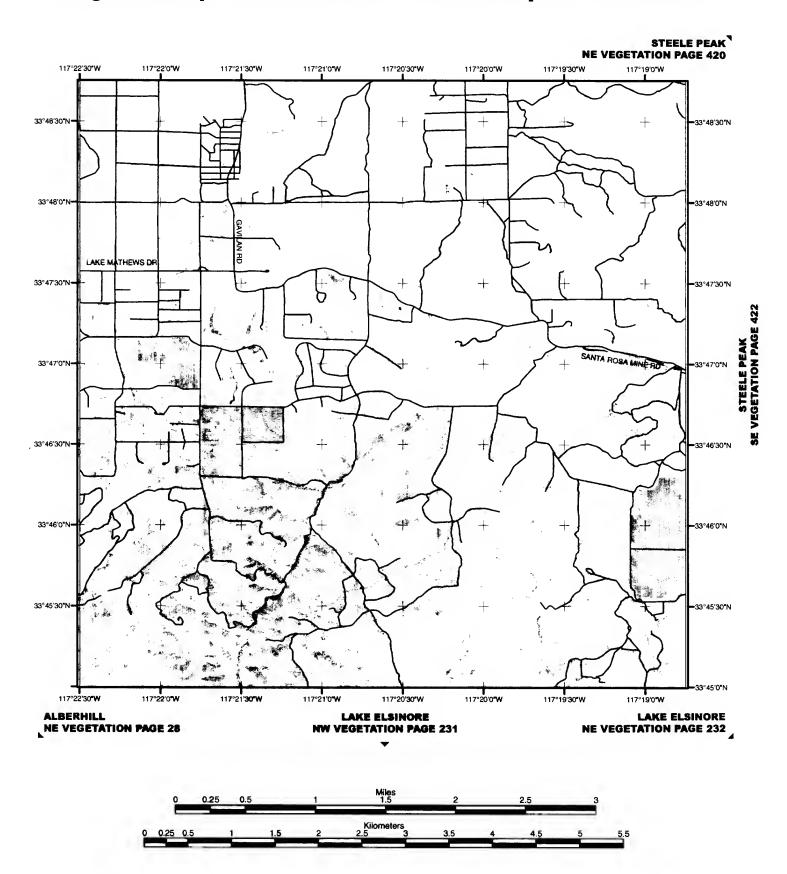
### Steele Peak Quadrangle Vegetation Species Association Units for Aquatic Resources



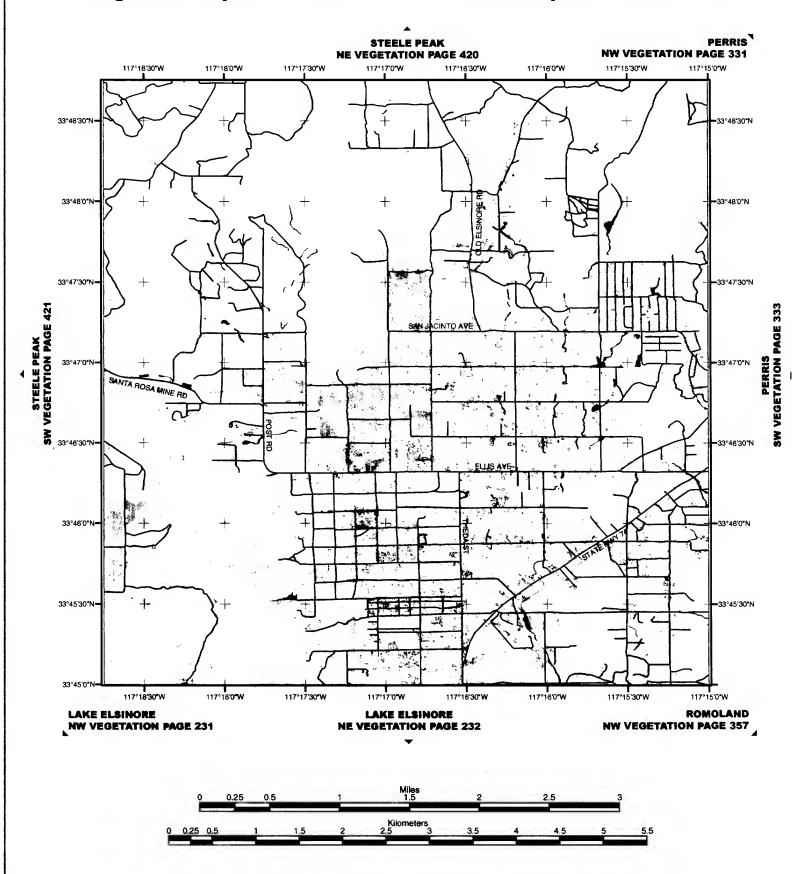
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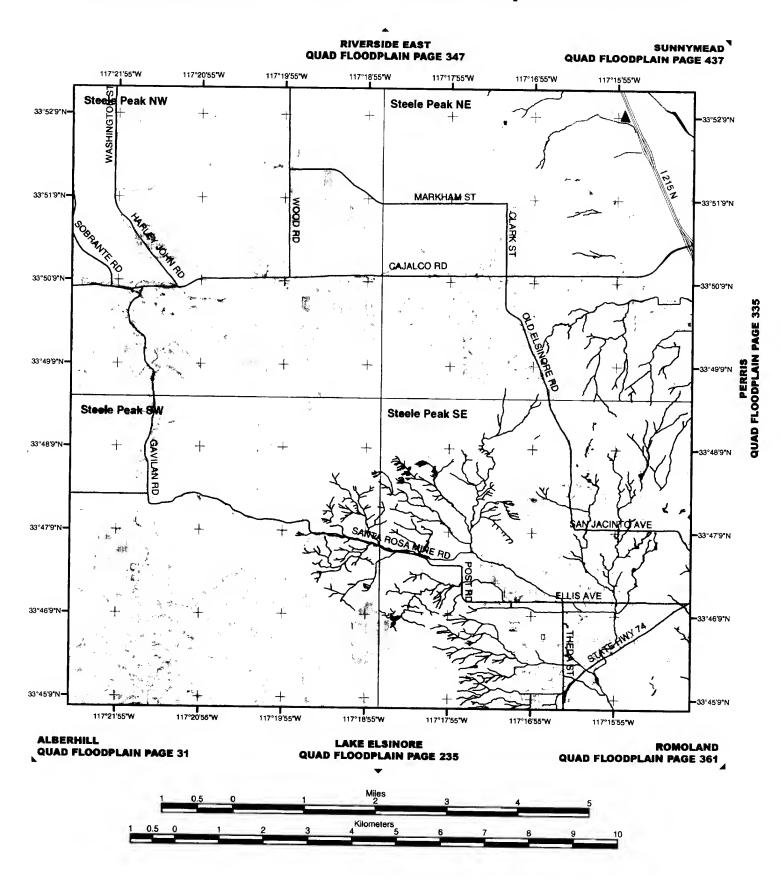
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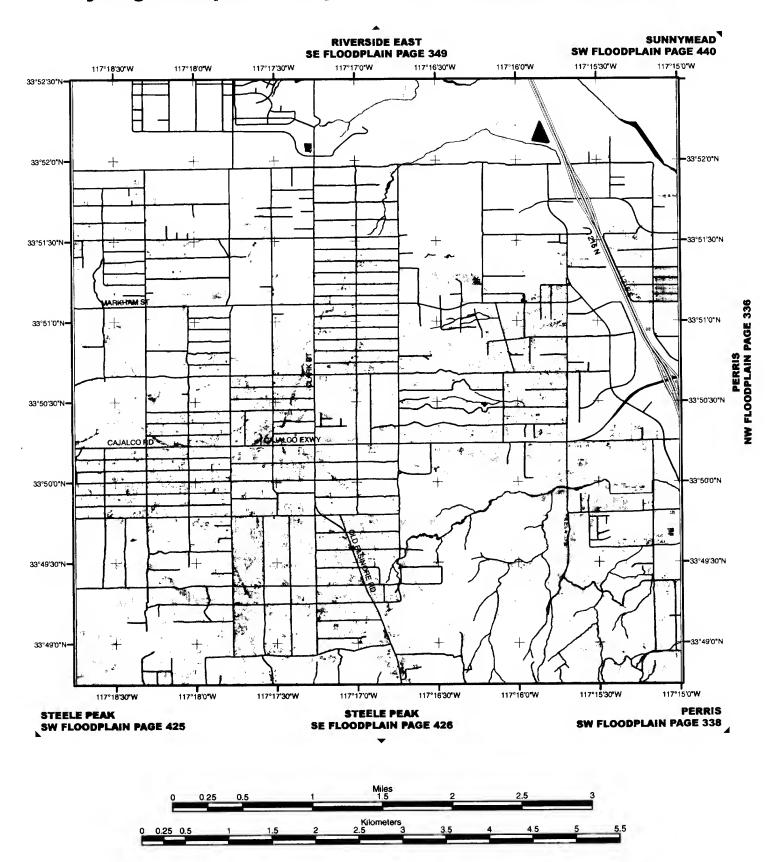
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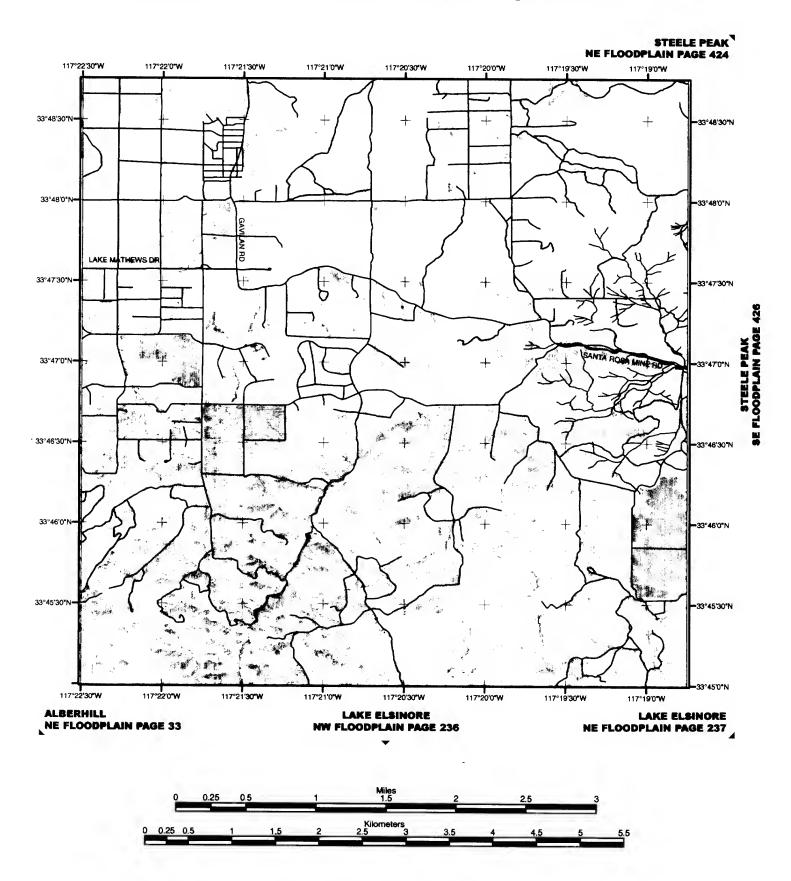
### Steele Peak Quadrangle Hydrogeomorphic Floodplain Units for Aquatic Resources



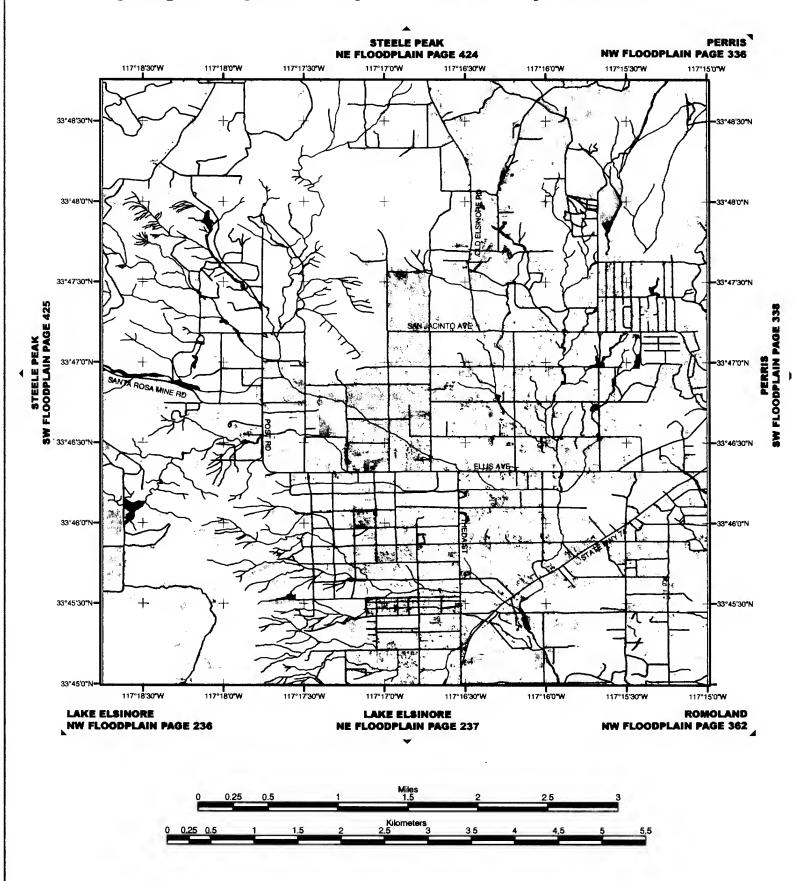
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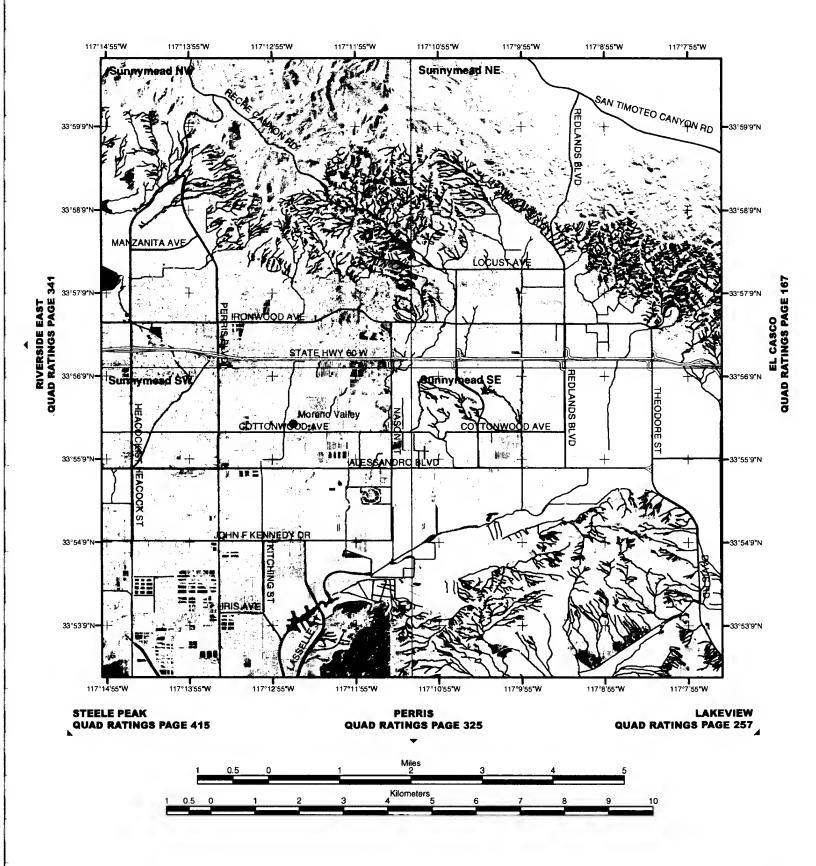
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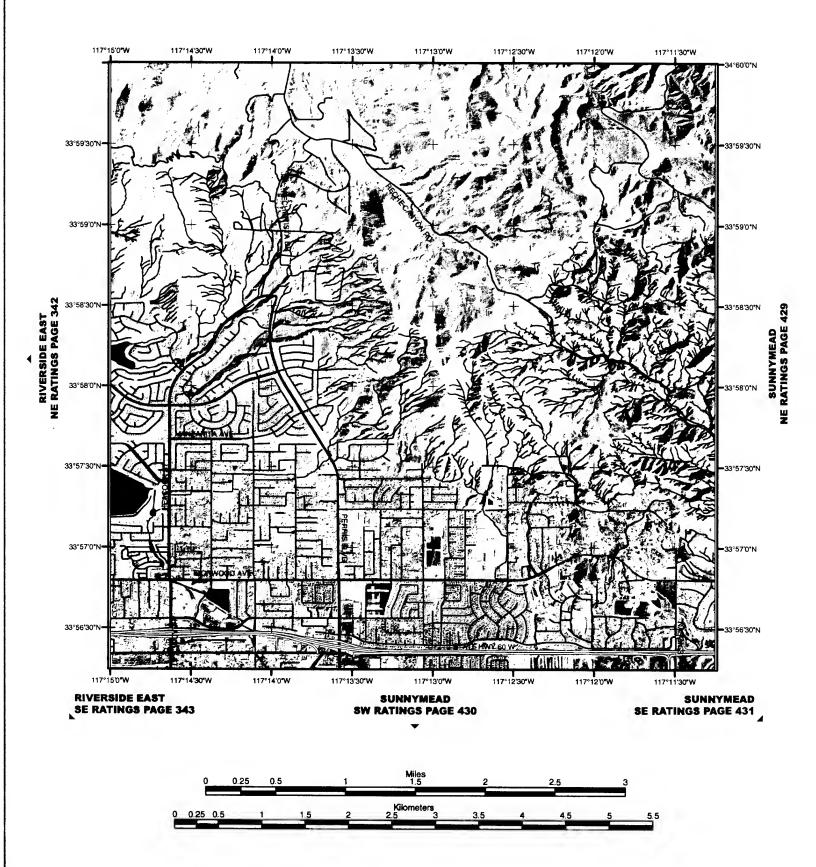
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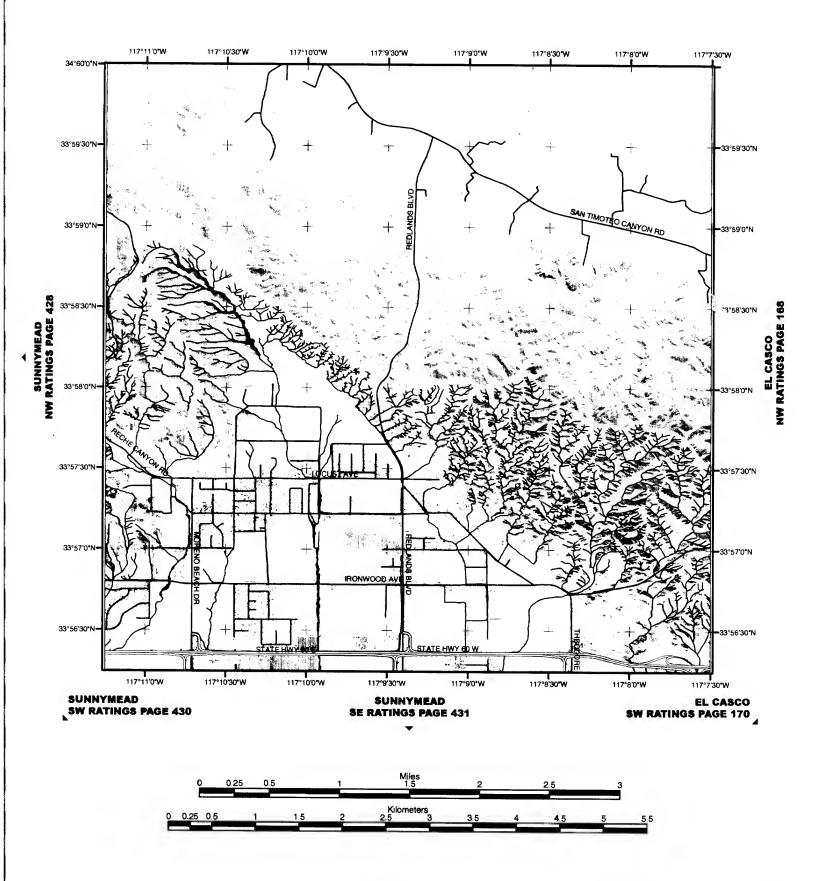
#### Sunnymead Quadrangle Regulatory Probability Ratings for Aquatic Resources



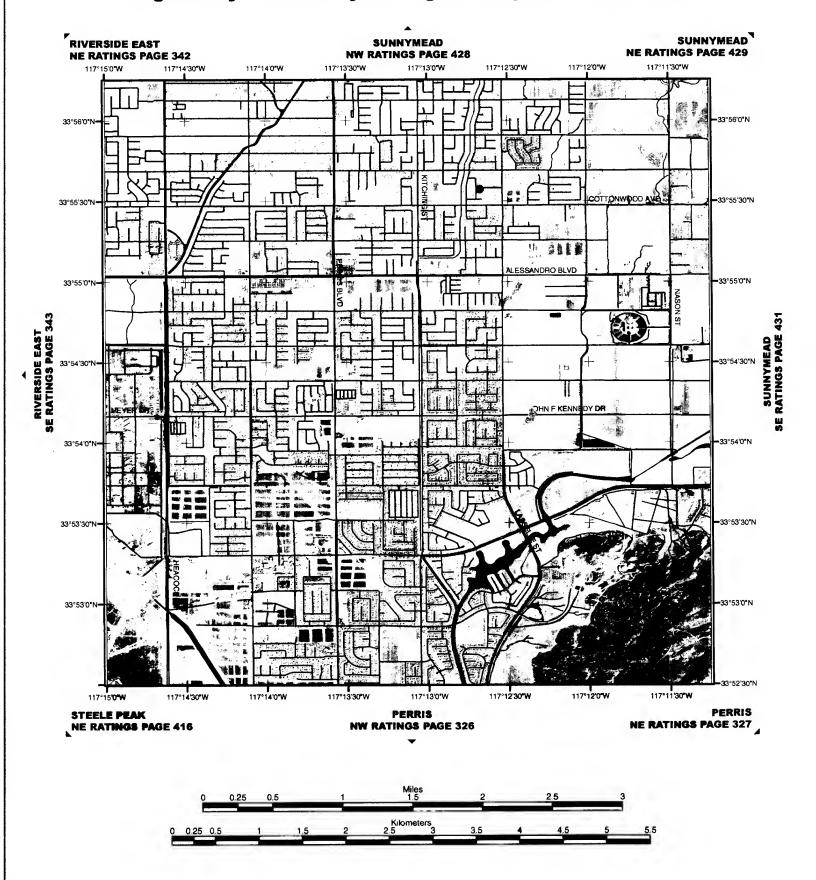
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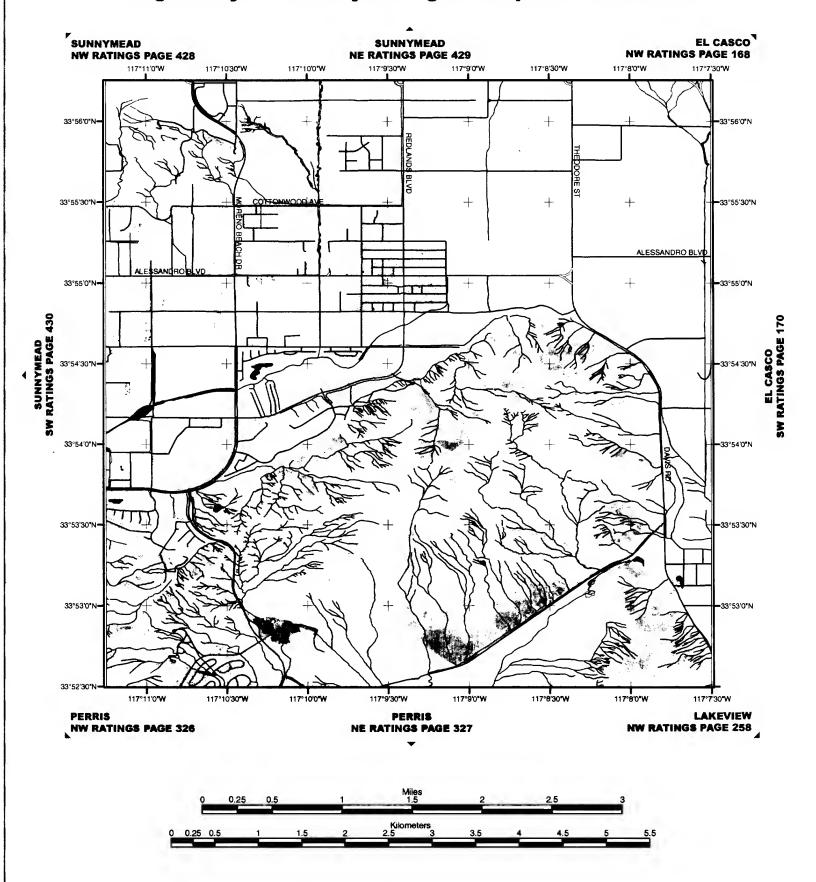
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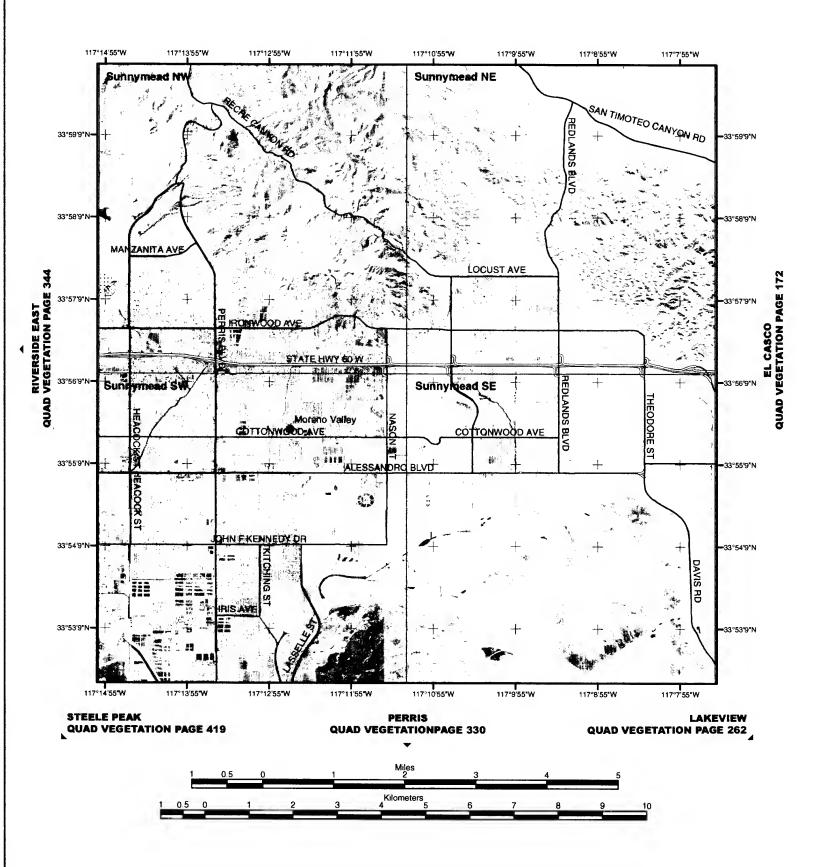
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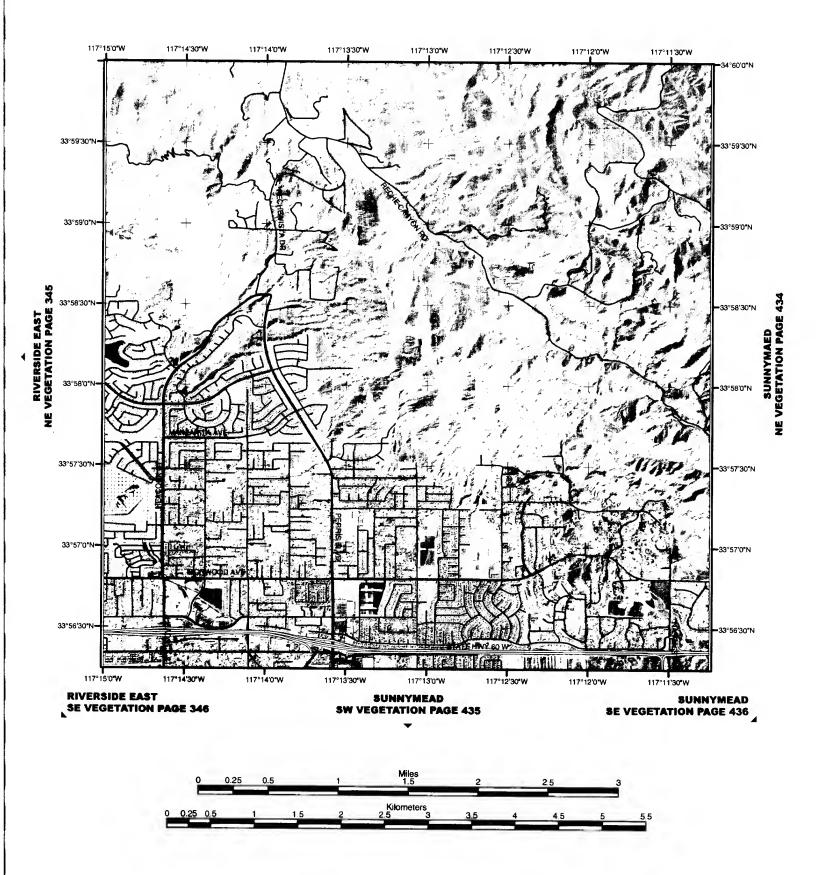
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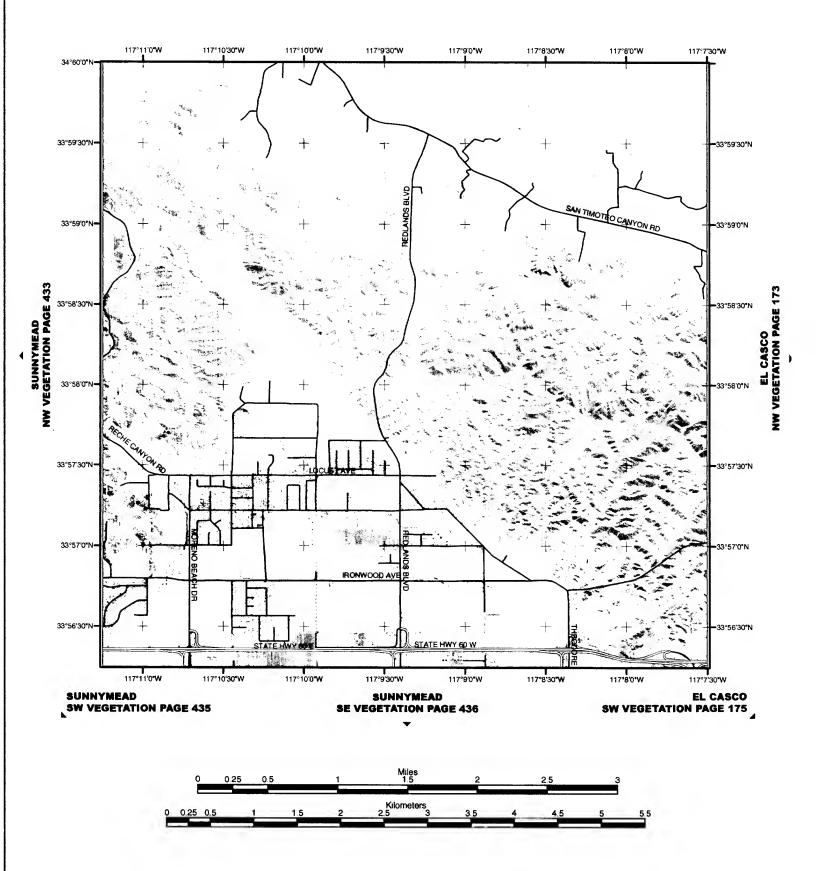
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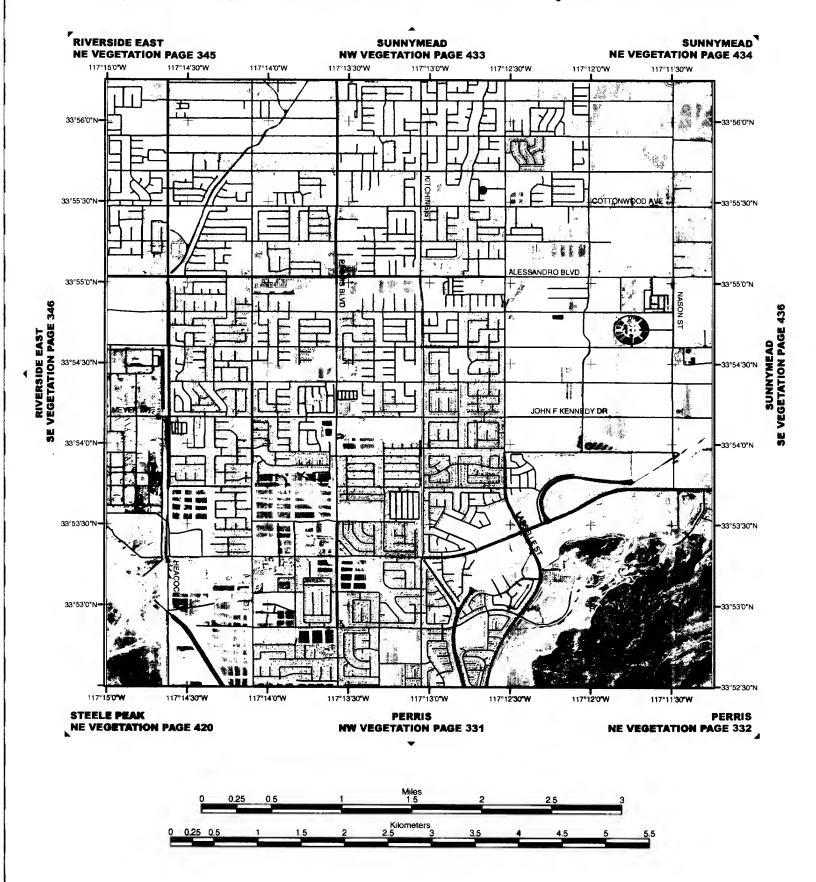
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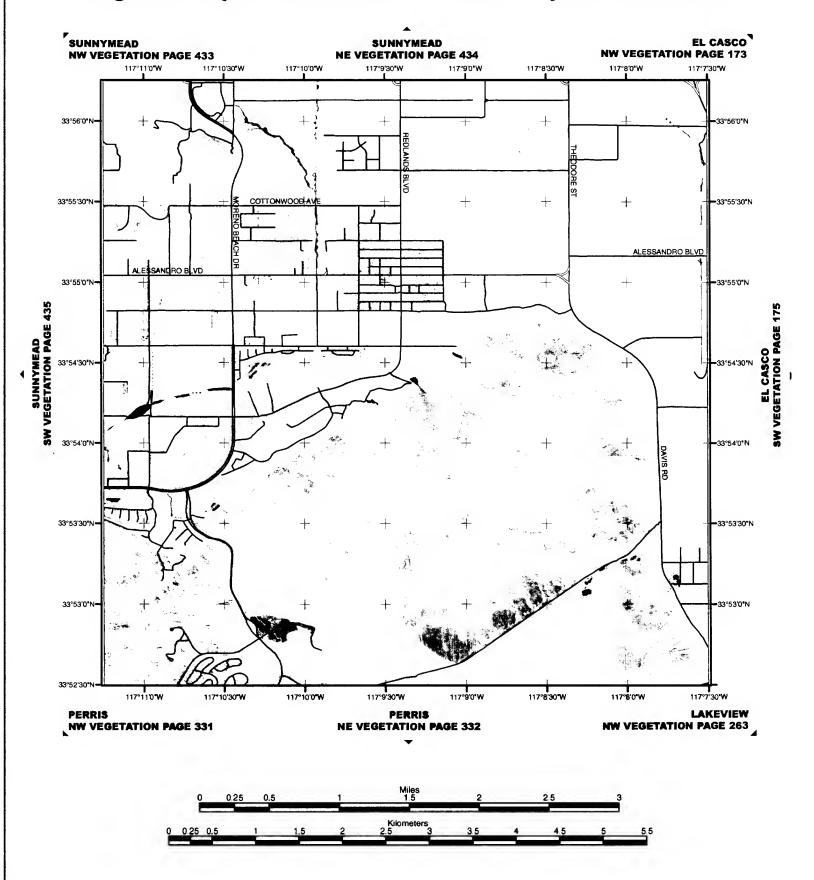
# Sunnymead North East Quarter-Quadrangle Vegetation Species Association Units for Aquatic Resources



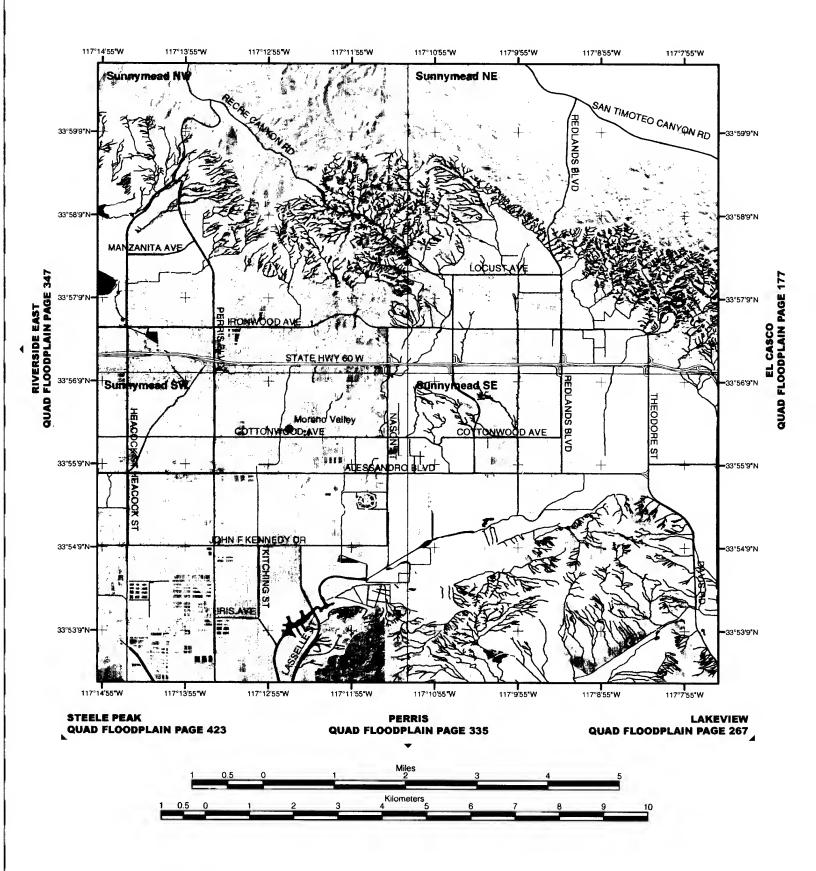
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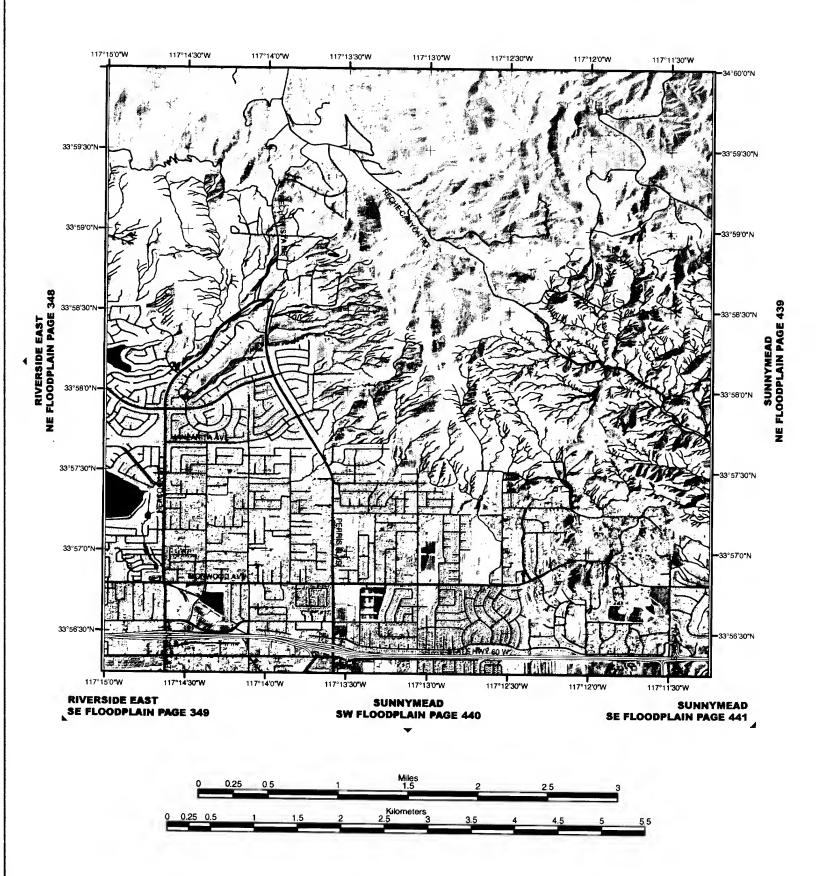
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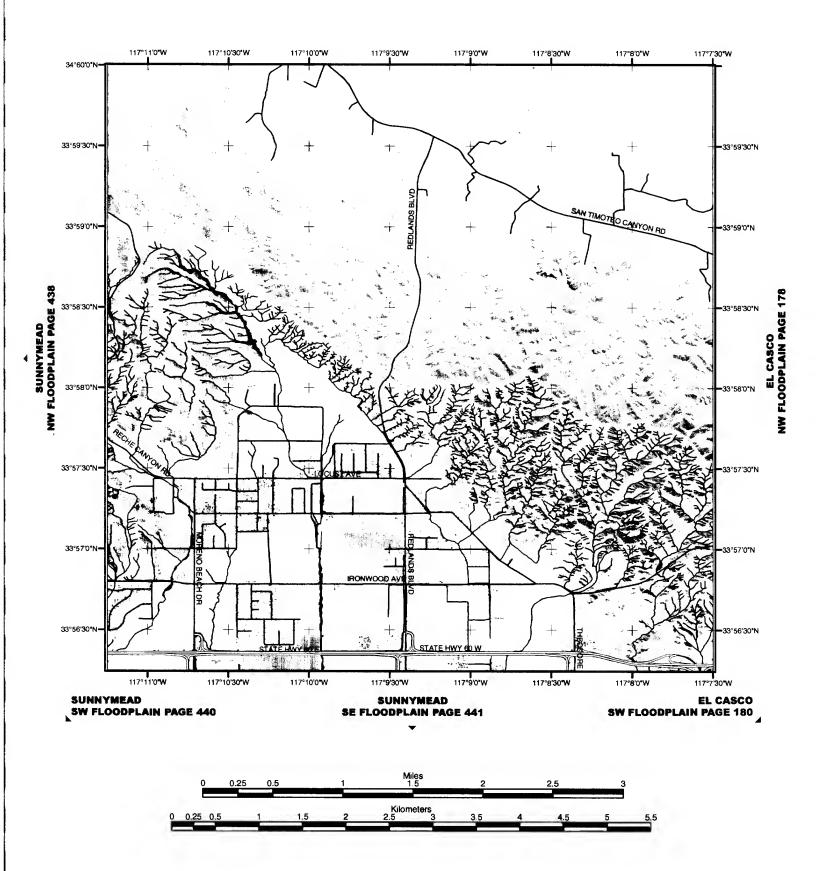
# Sunnymead Quadrangle Hydrogeomorphic Floodplain Units for Aquatic Resources



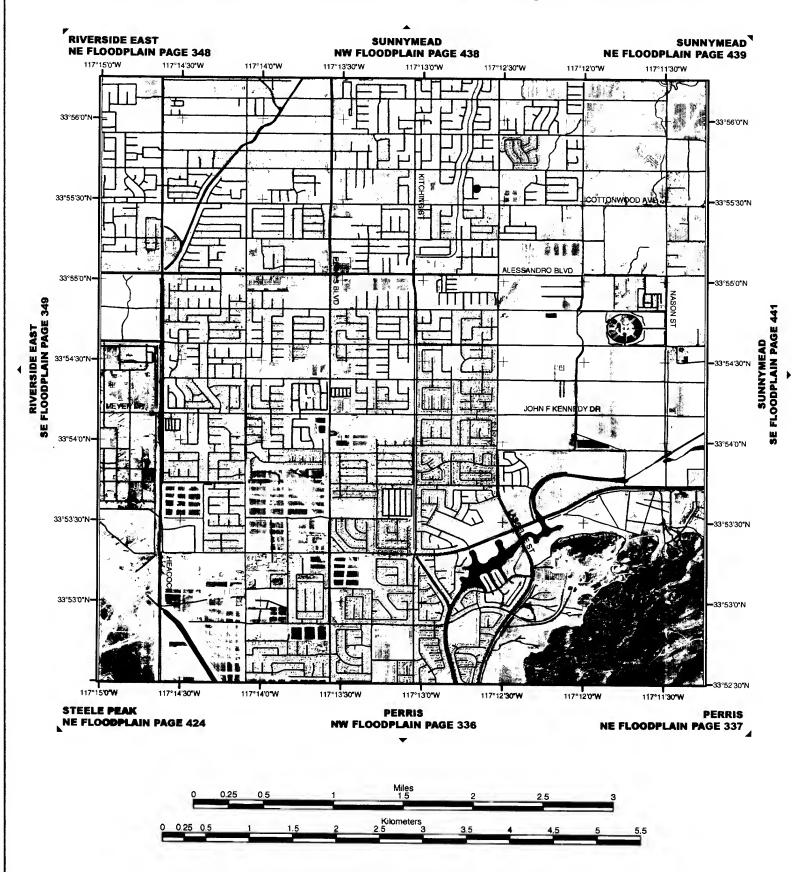
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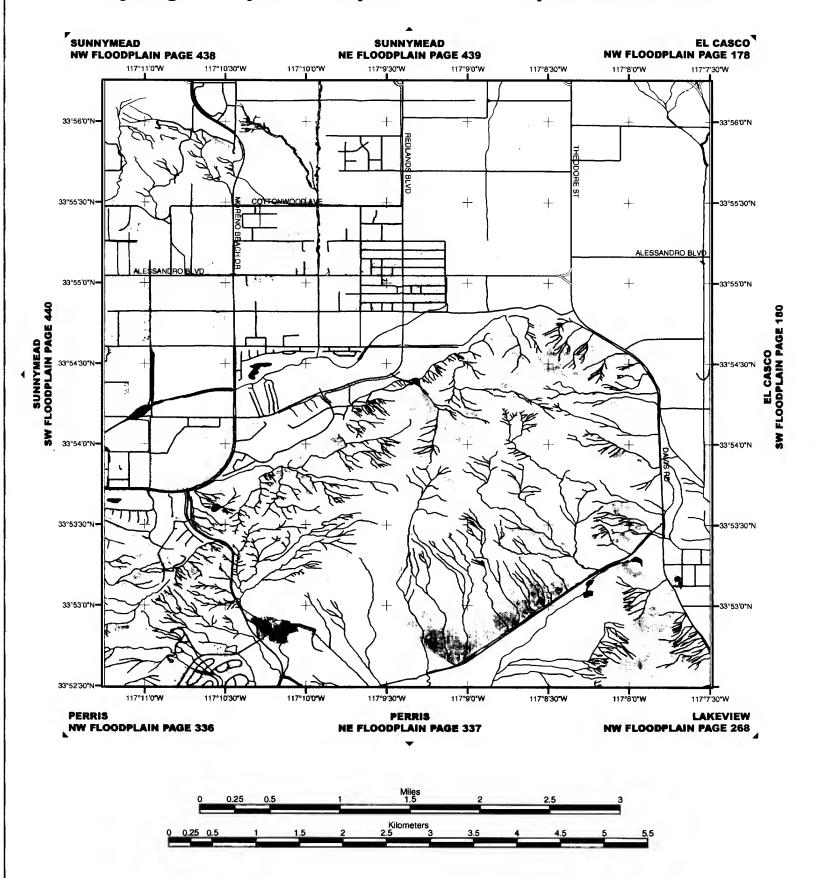
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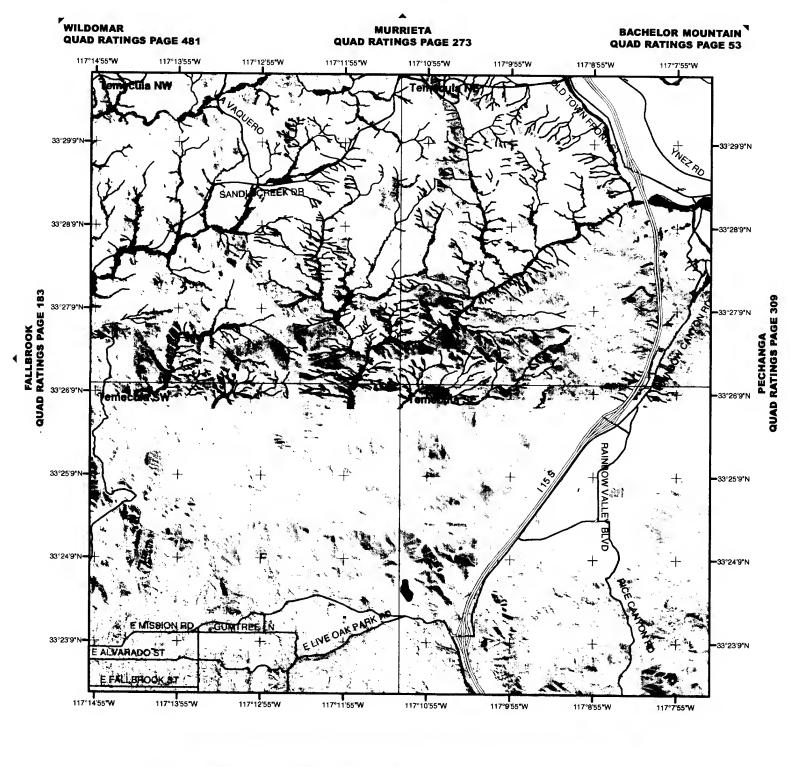
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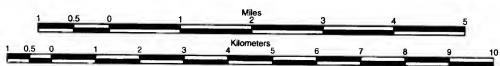


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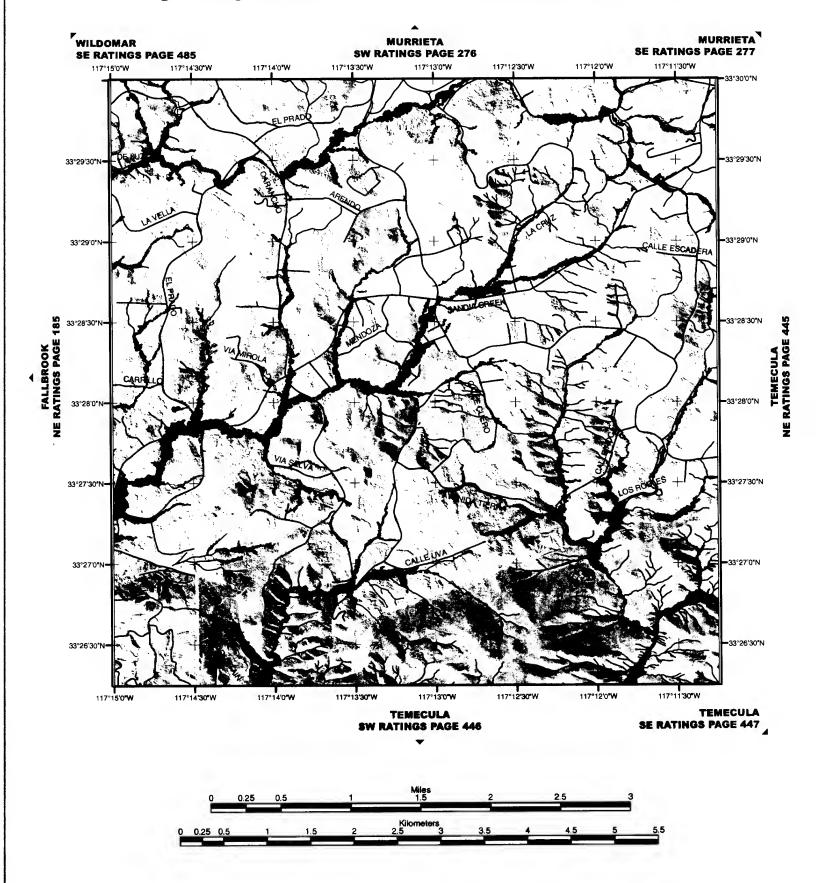


# Temecula Quadrangle Regulatory Probability Ratings for Aquatic Resources

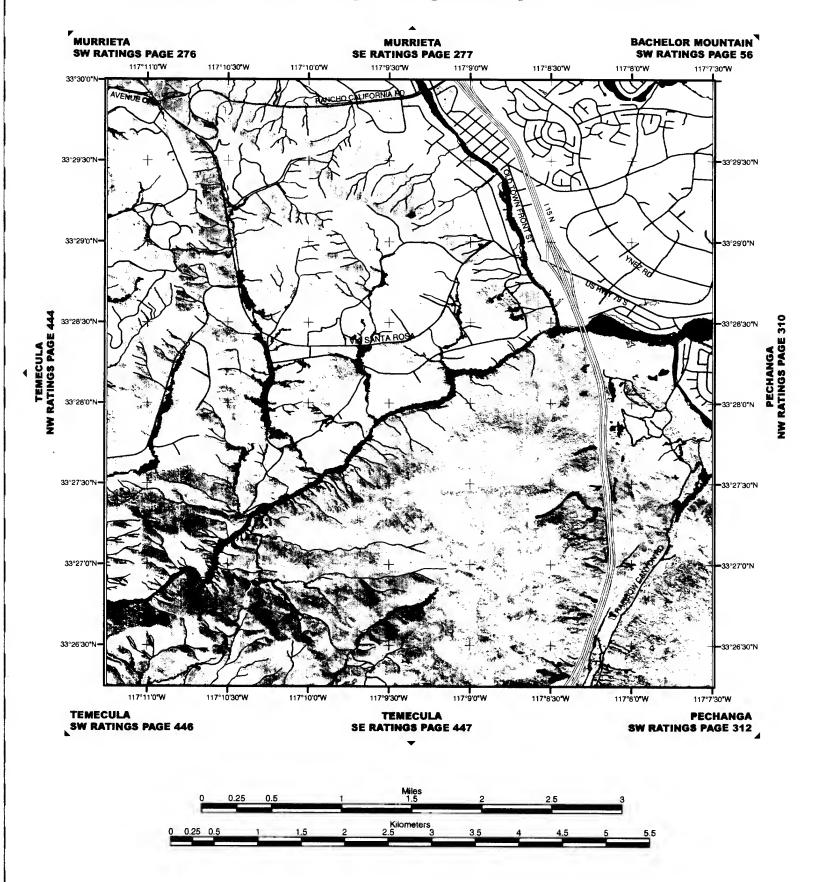




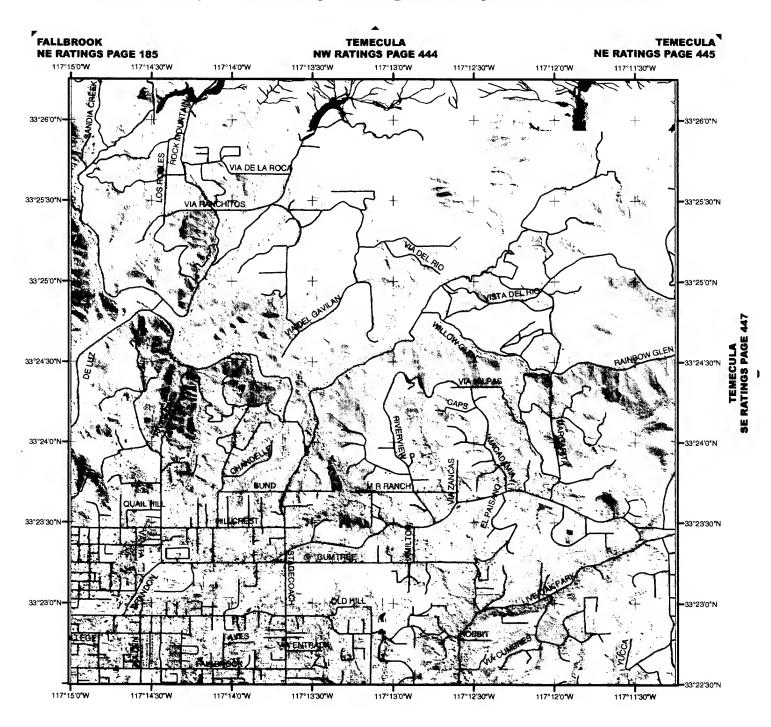
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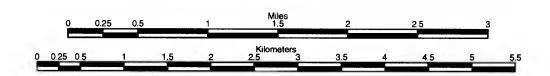


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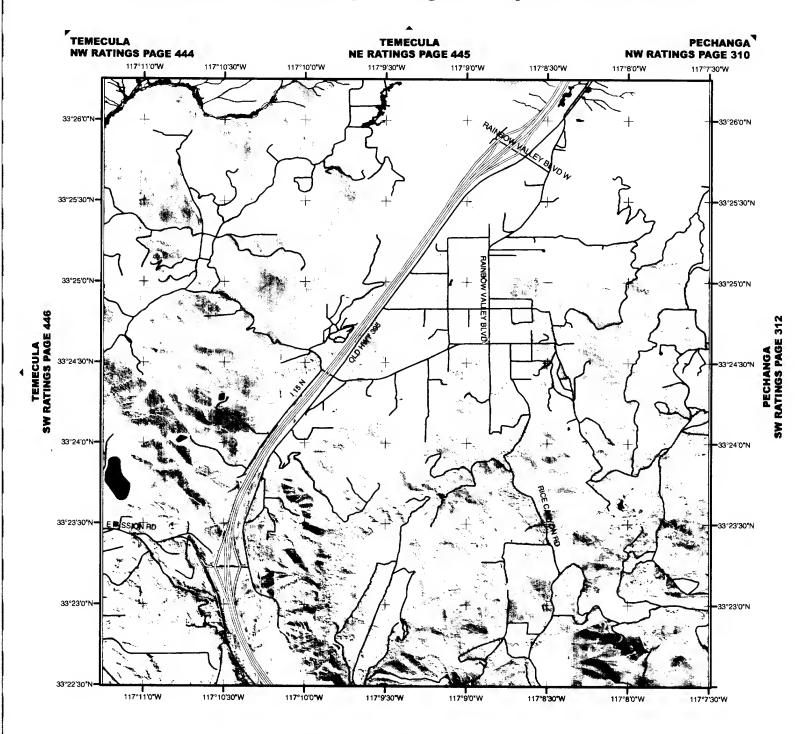


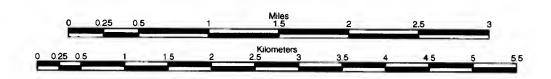
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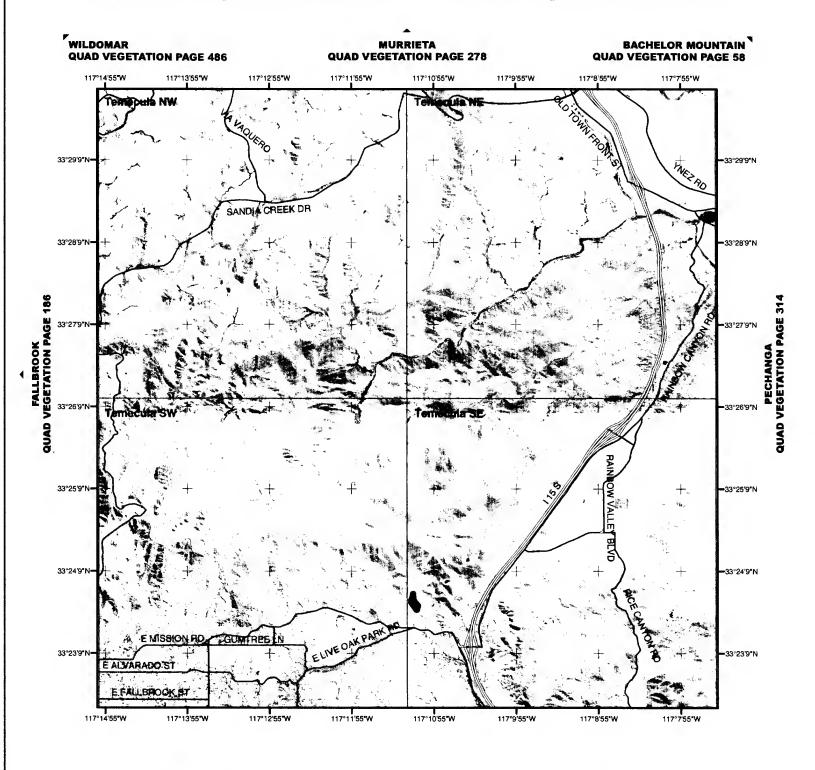


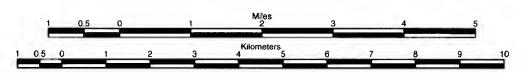
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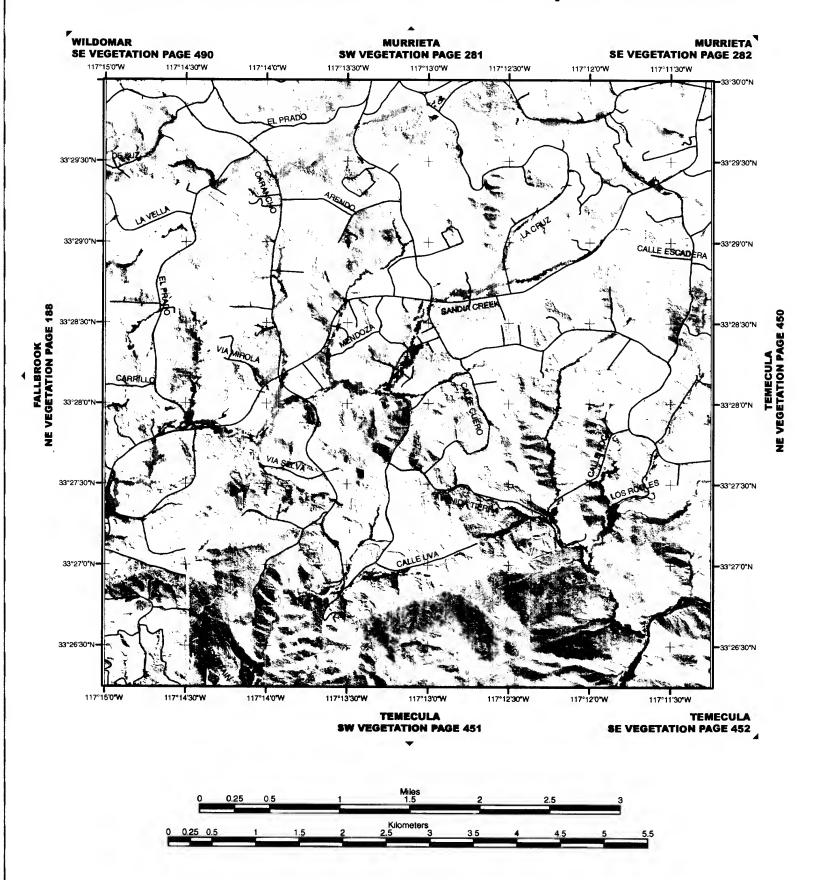


# Temecula Quadrangle Vegetation Species Association Units for Aquatic Resources

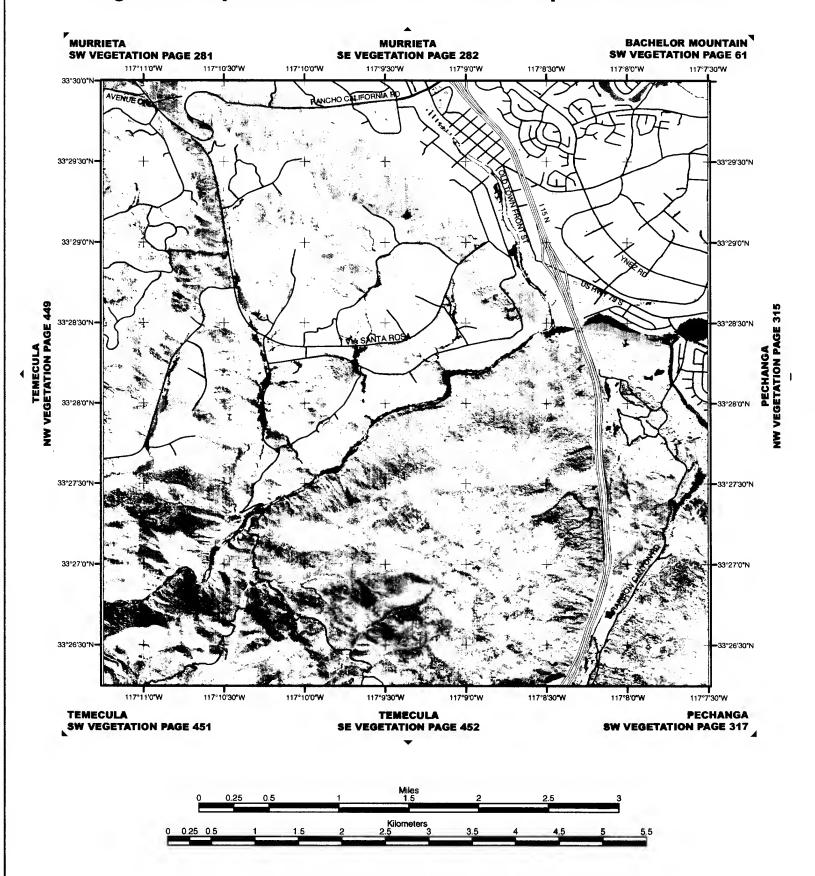




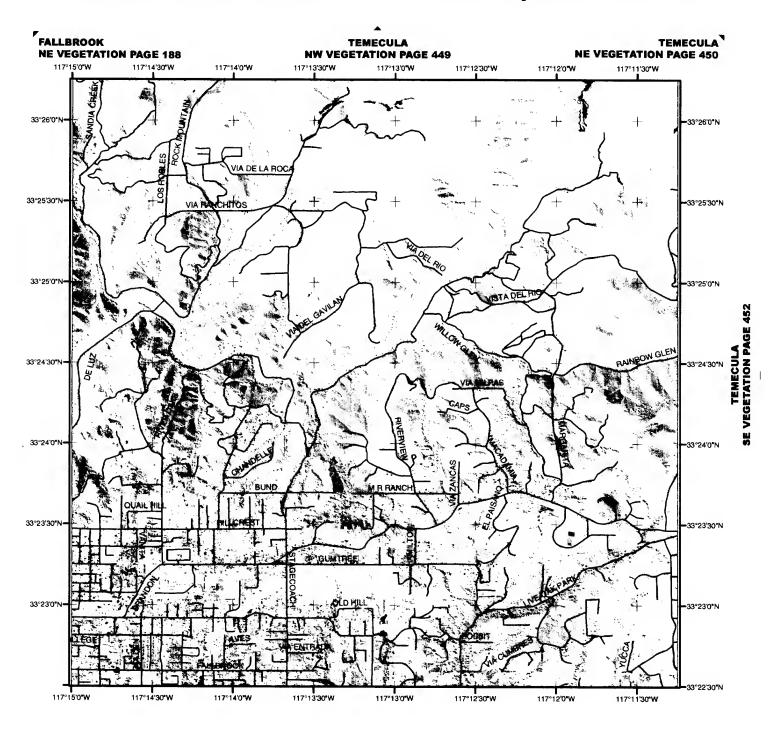
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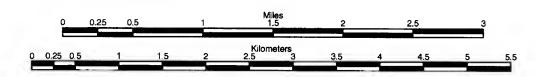


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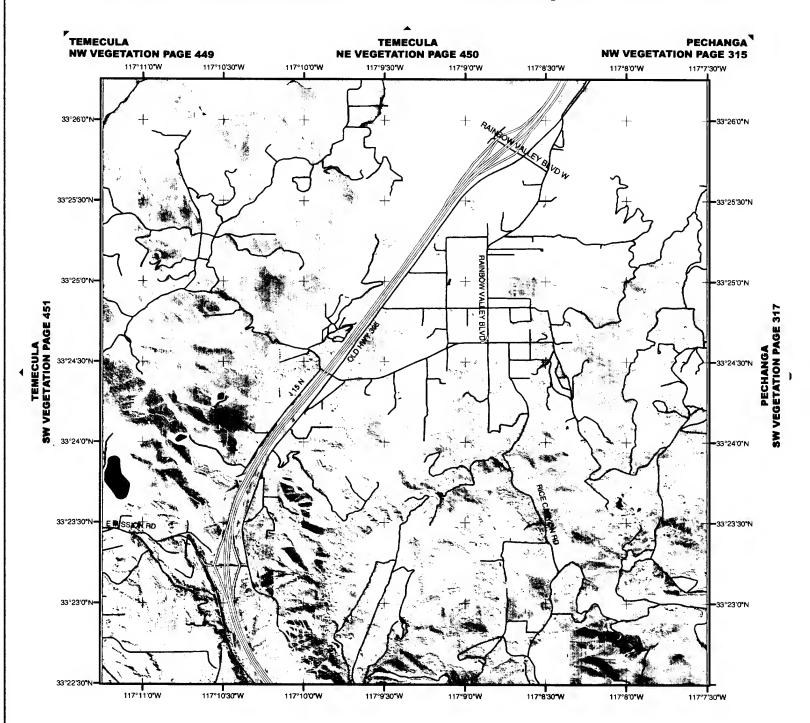


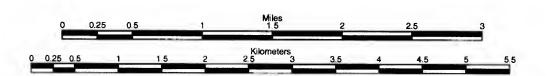
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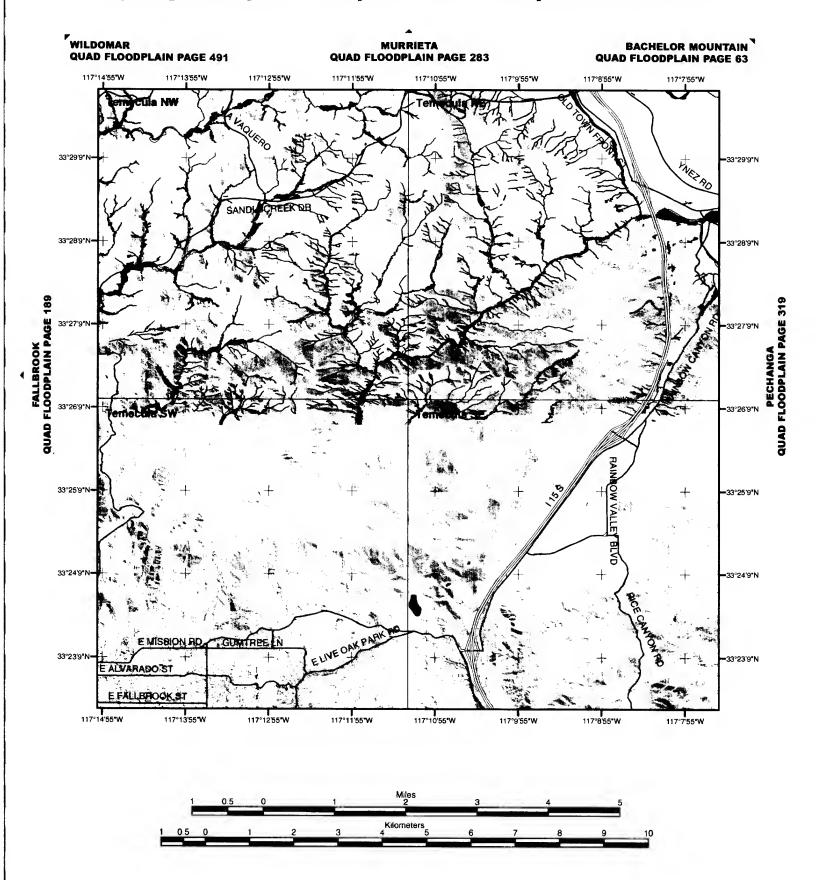


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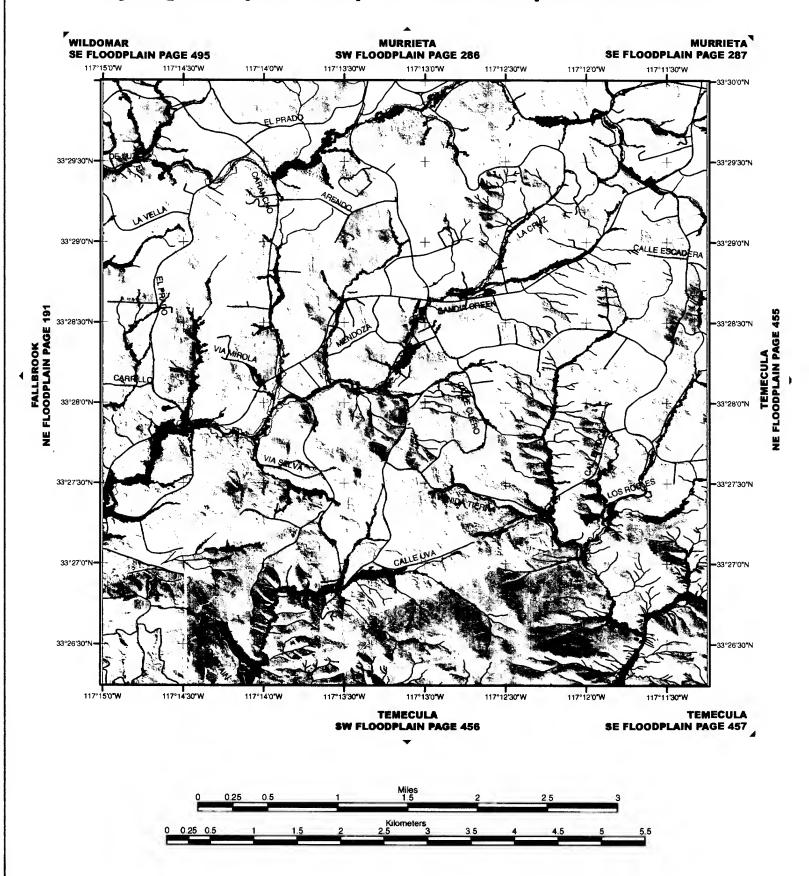




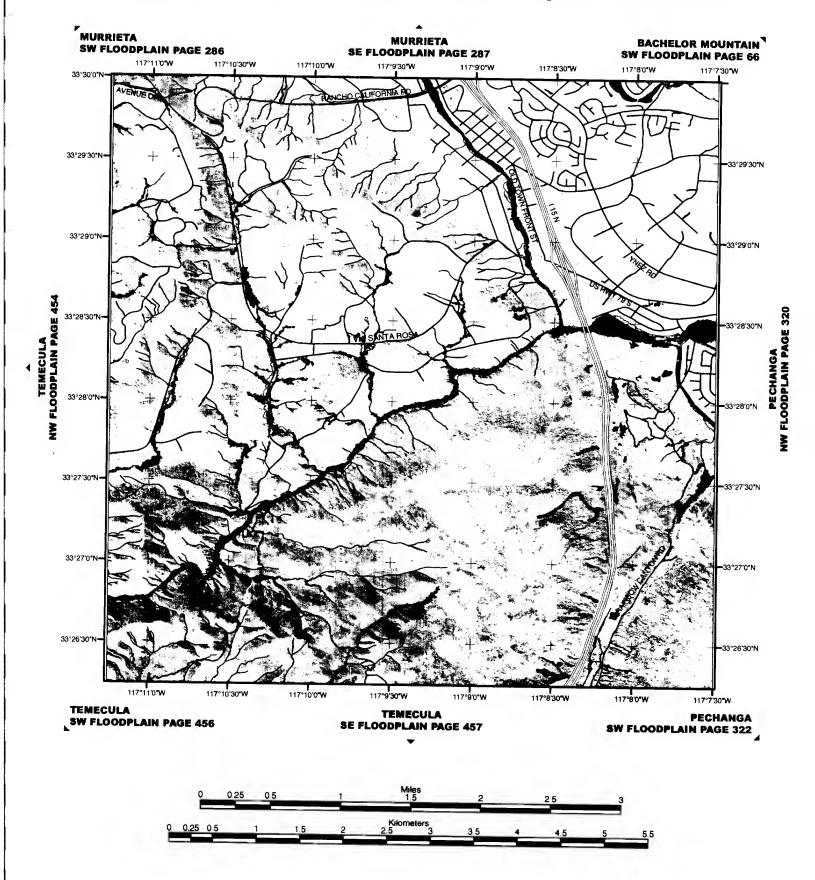
# Temecula Quadrangle Hydrogeomorphic Floodplain Units for Aquatic Resources



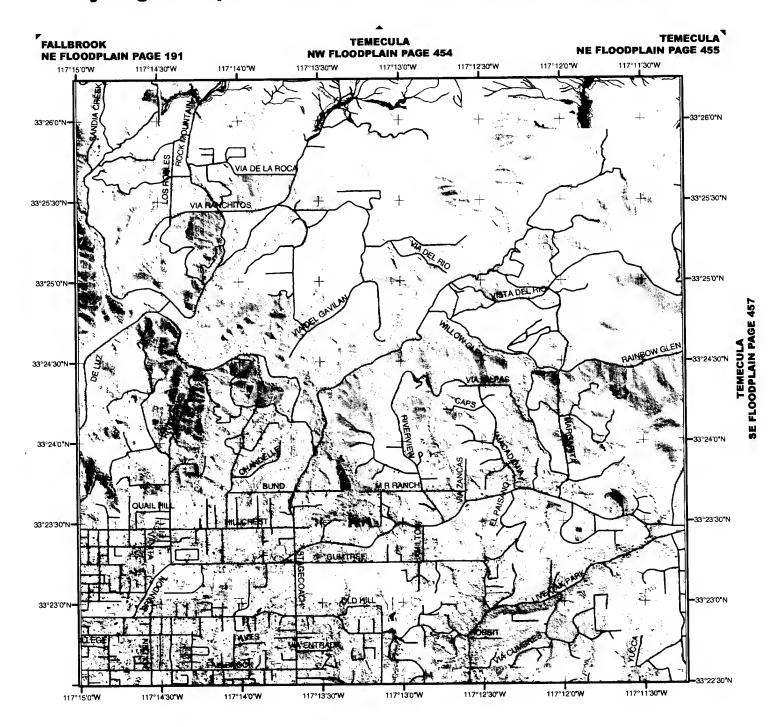
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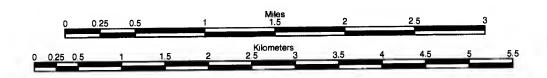


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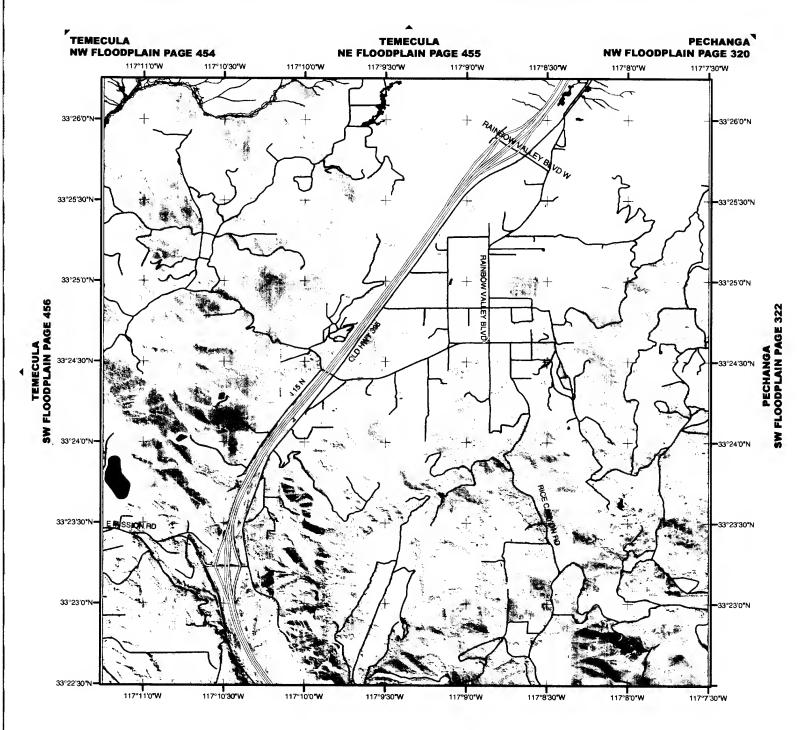


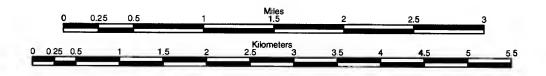
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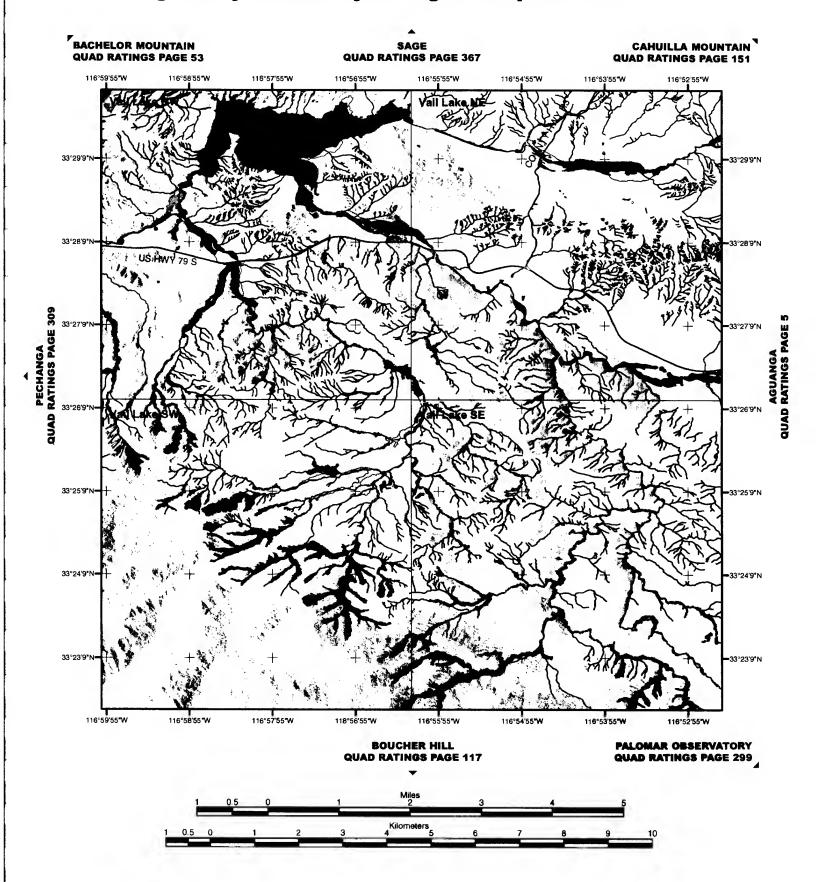


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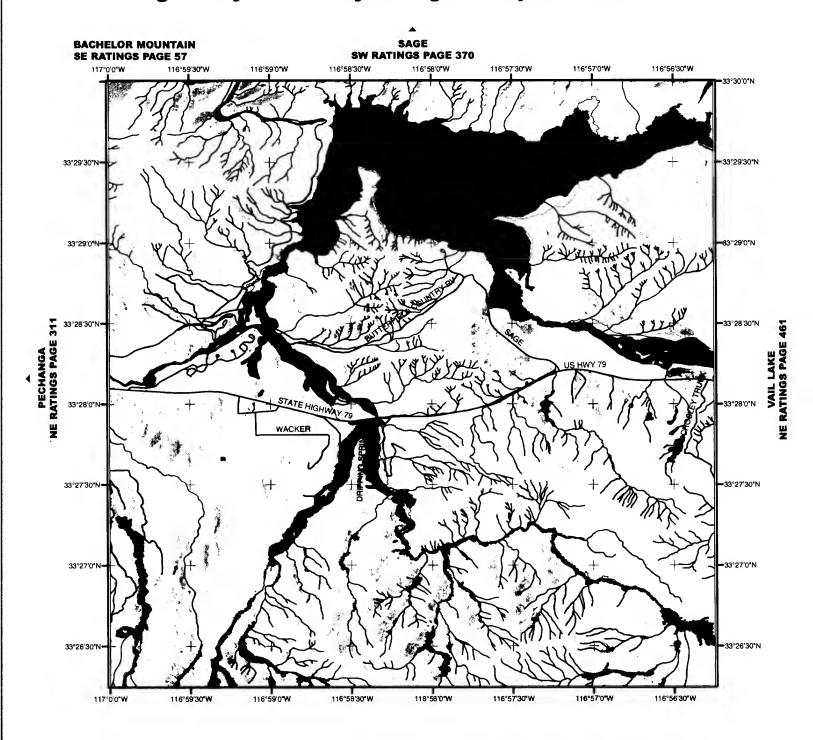


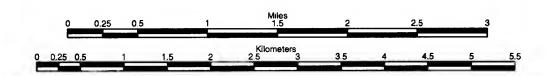


## Vail Lake Quadrangle Regulatory Probability Ratings for Aquatic Resources

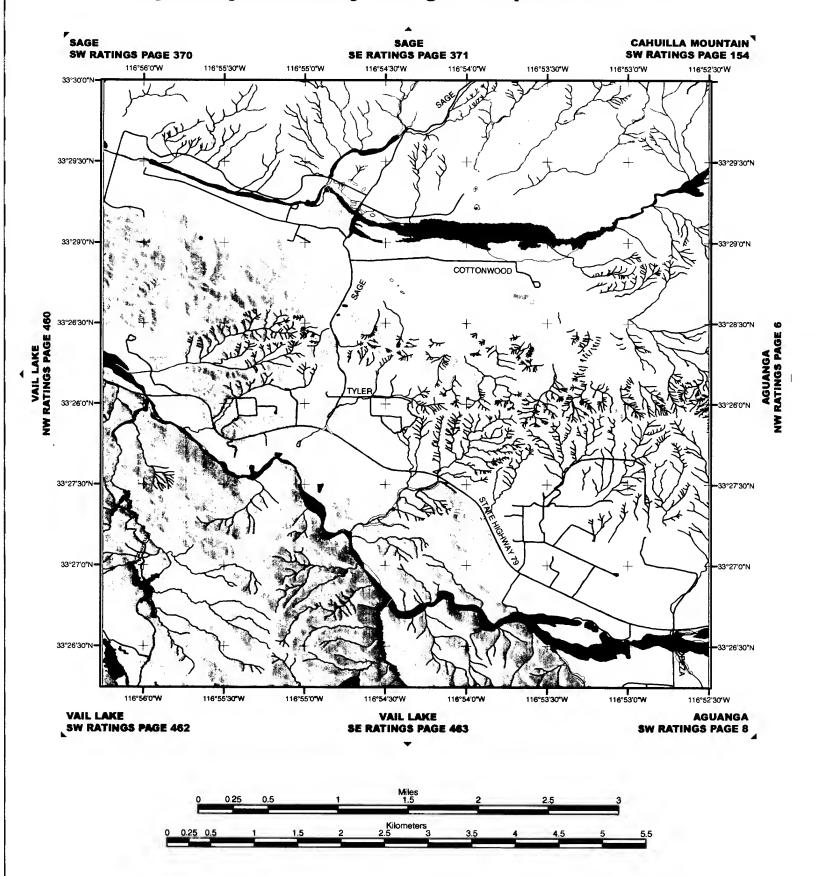


### Vail Lake North West Quarter-Quadrangle Regulatory Probability Ratings for Aquatic Resources

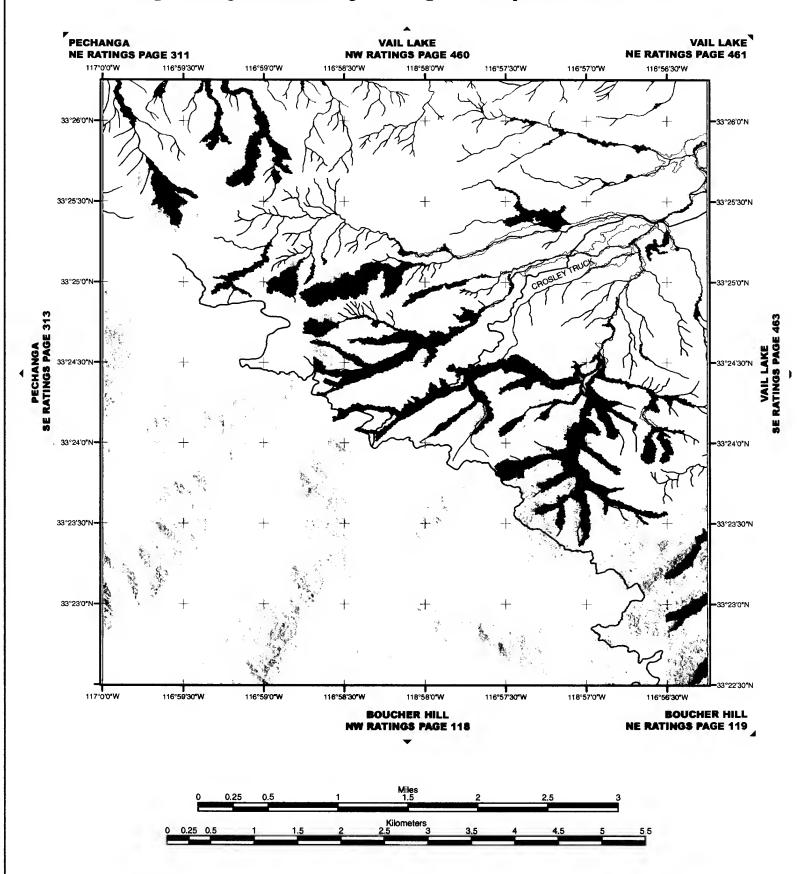




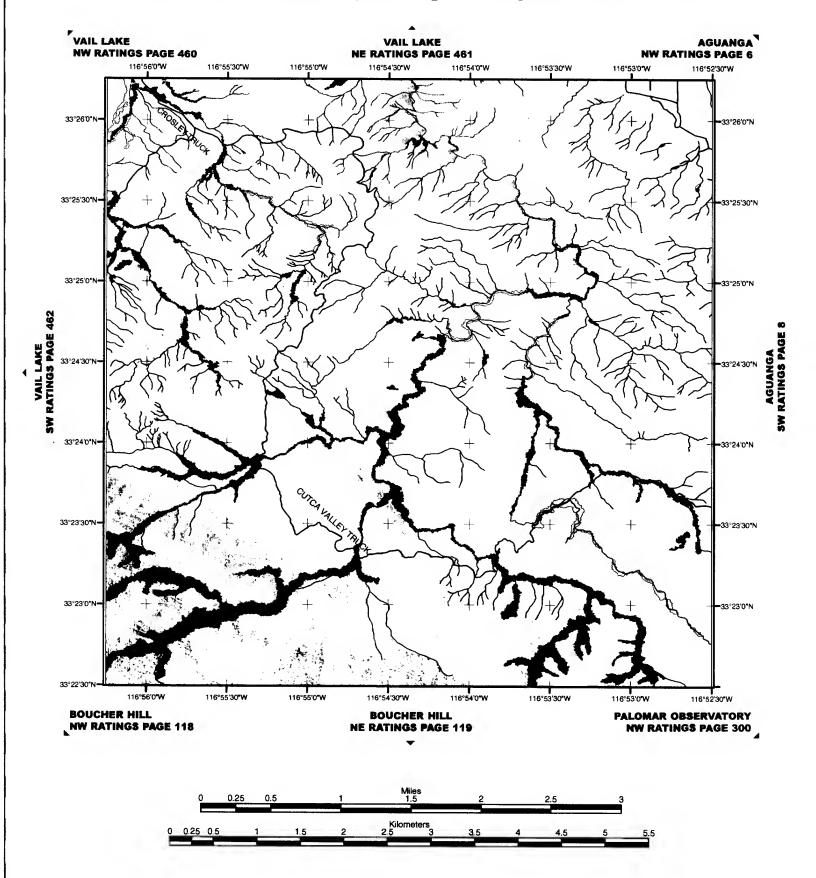
# Vail Lake North East Quarter-Quadrangle Regulatory Probability Ratings for Aquatic Resources



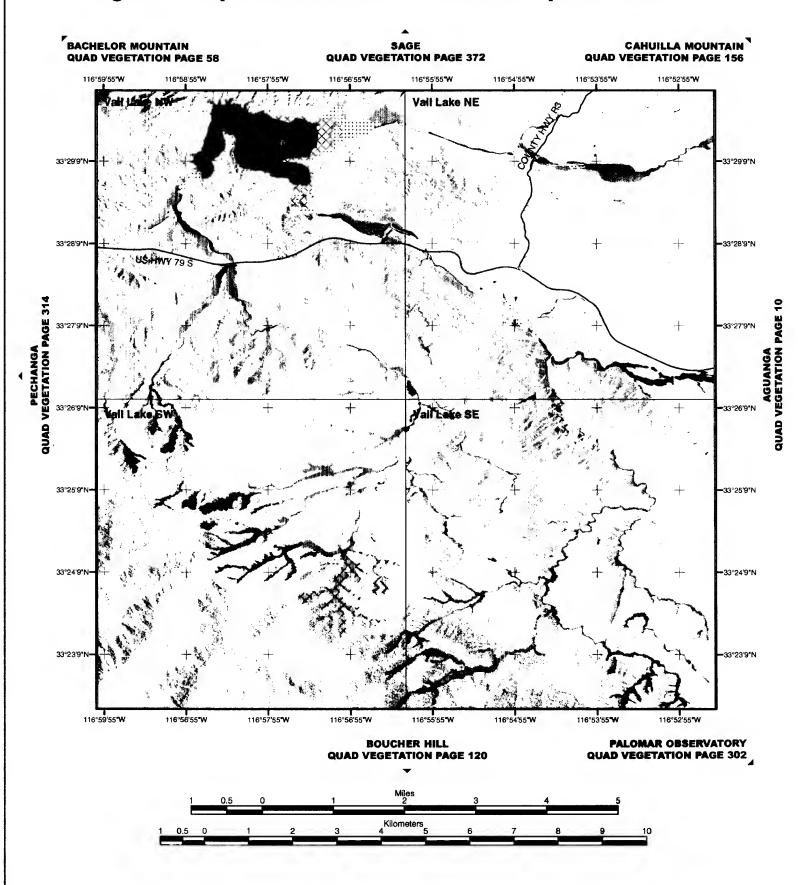
## Vail Lake South West Quarter-Quadrangle Regulatory Probability Ratings for Aquatic Resources



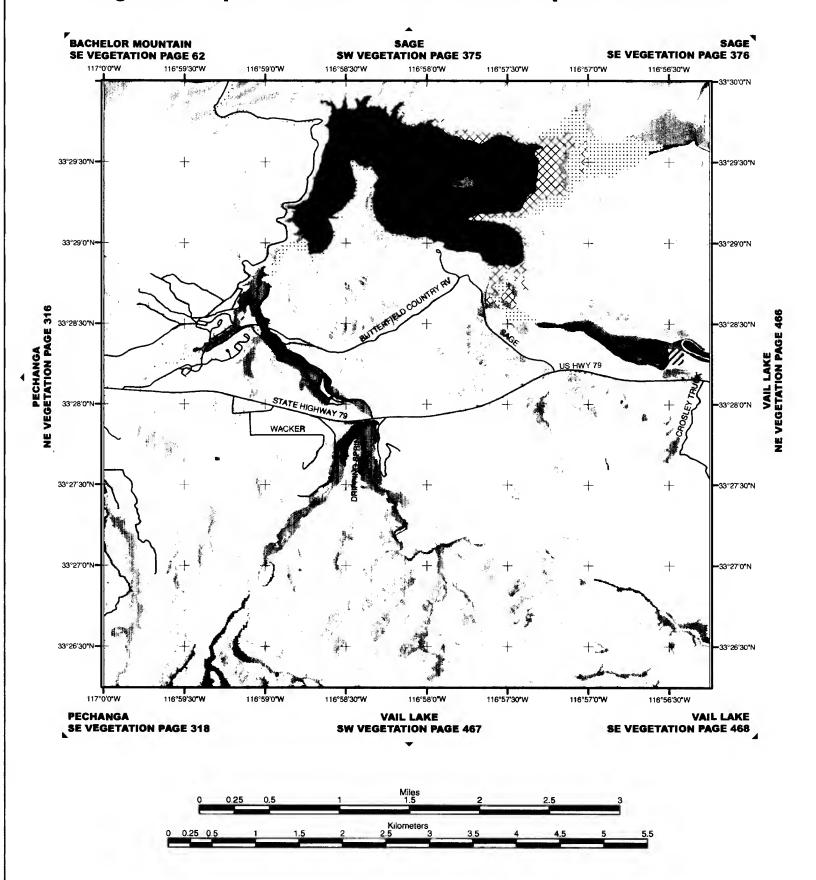
#### Vail Lake South East Quarter-Quadrangle Regulatory Probability Ratings for Aquatic Resources



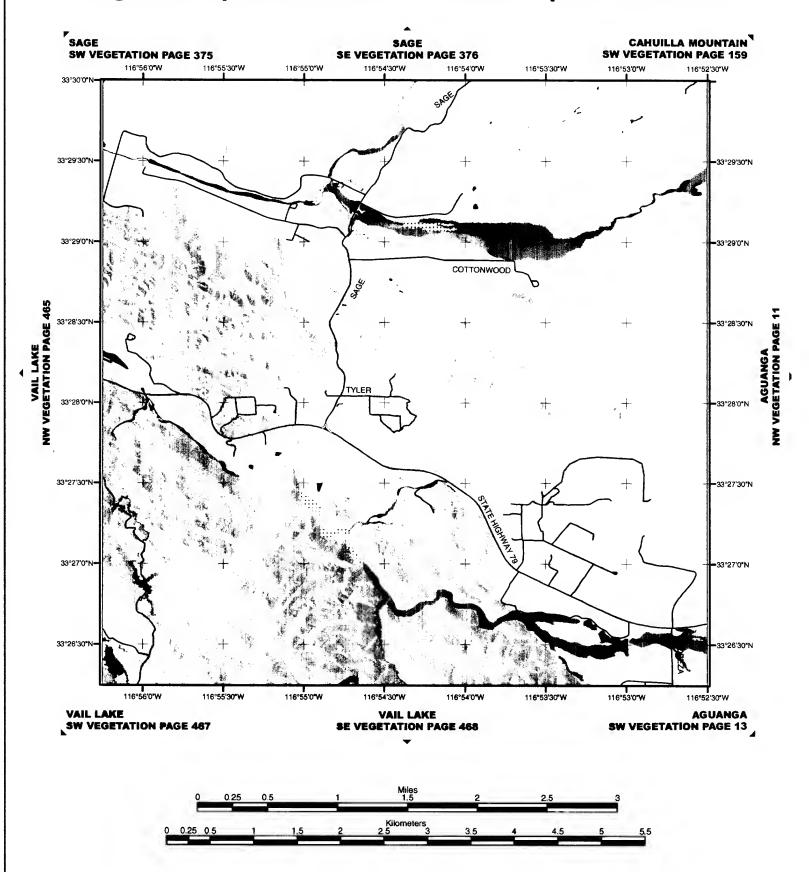
## Vail Lake Quadrangle Vegetation Species Association Units for Aquatic Resources



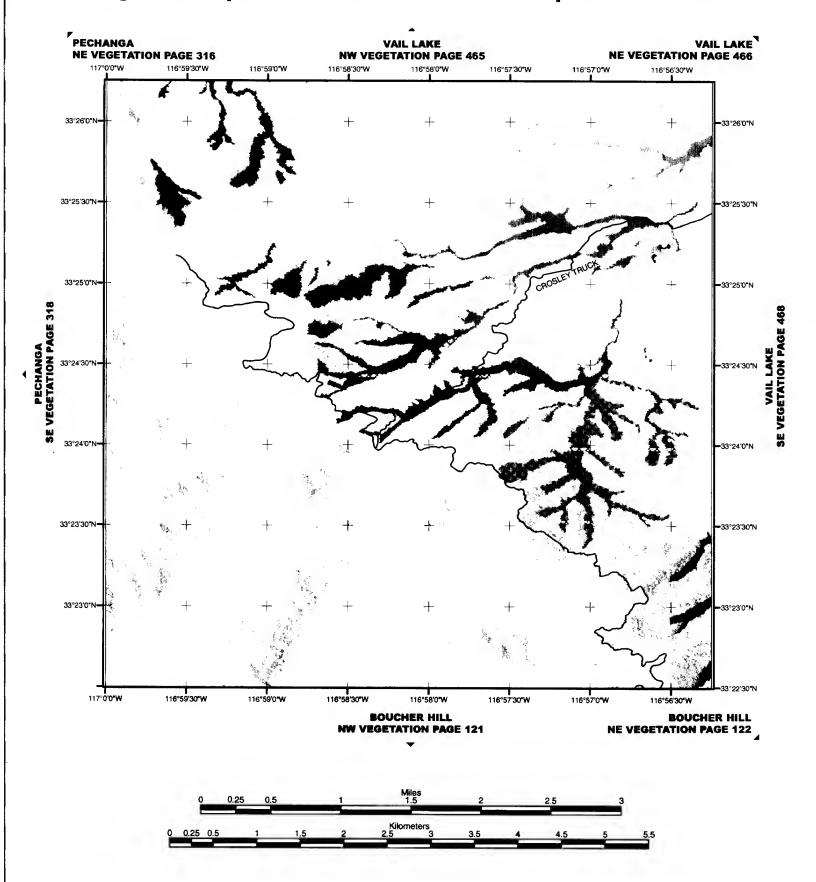
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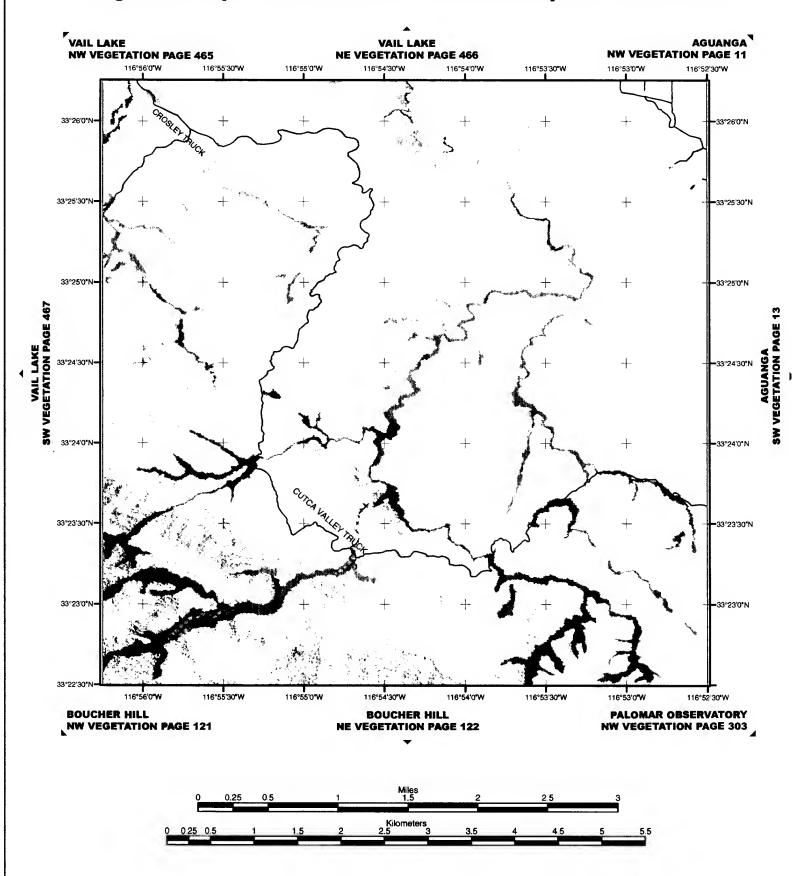
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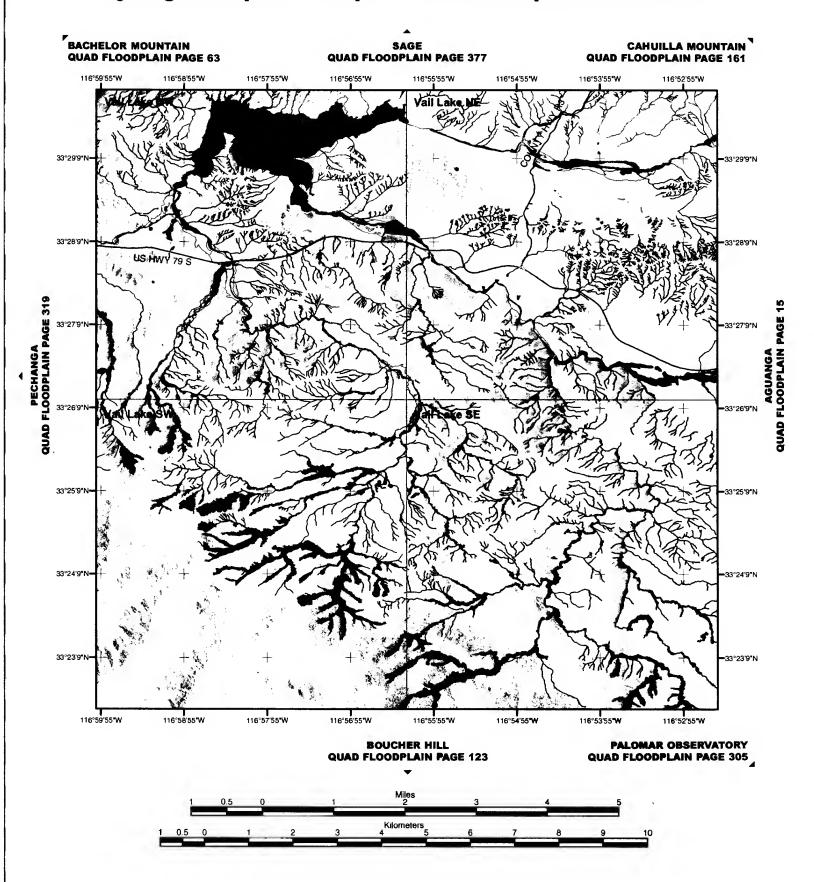
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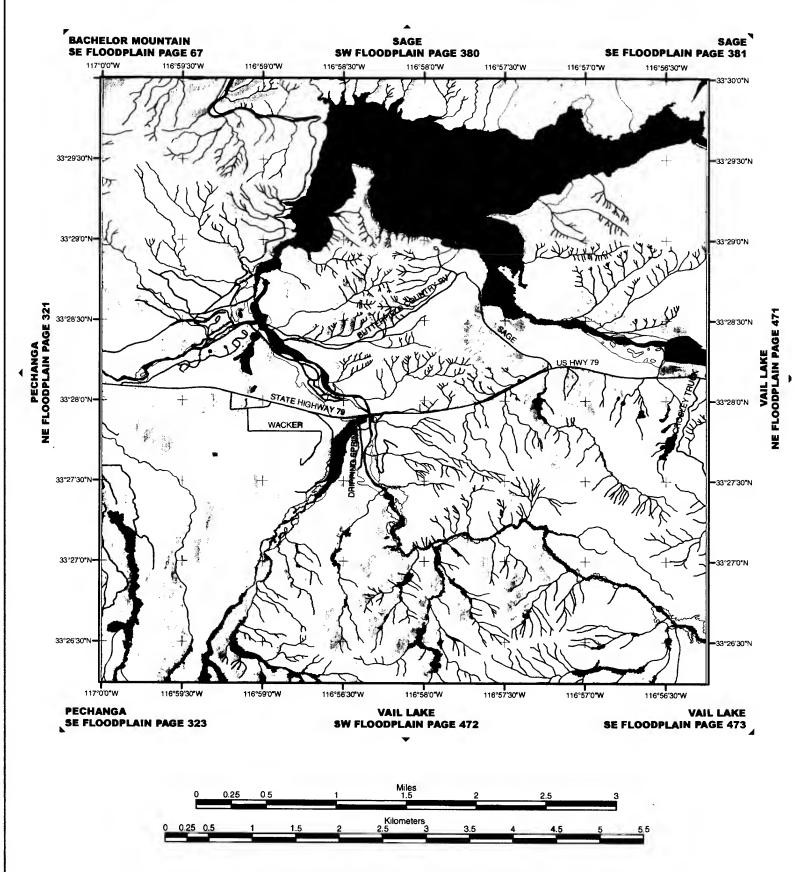
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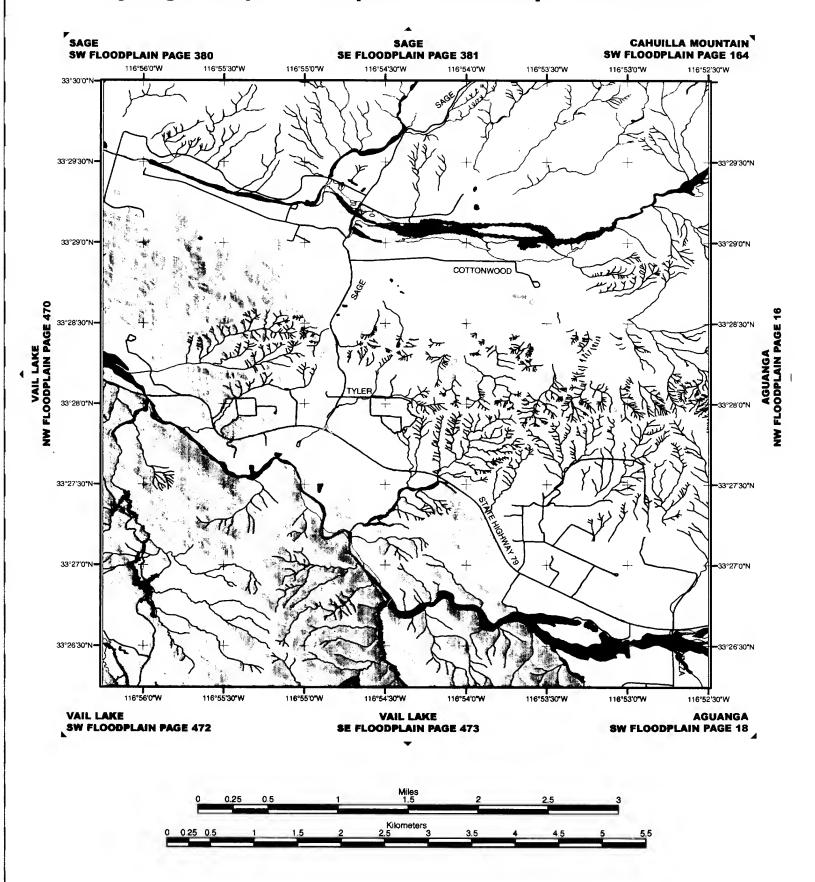
### Vail Lake Quadrangle Hydrogeomorphic Floodplain Units for Aquatic Resources



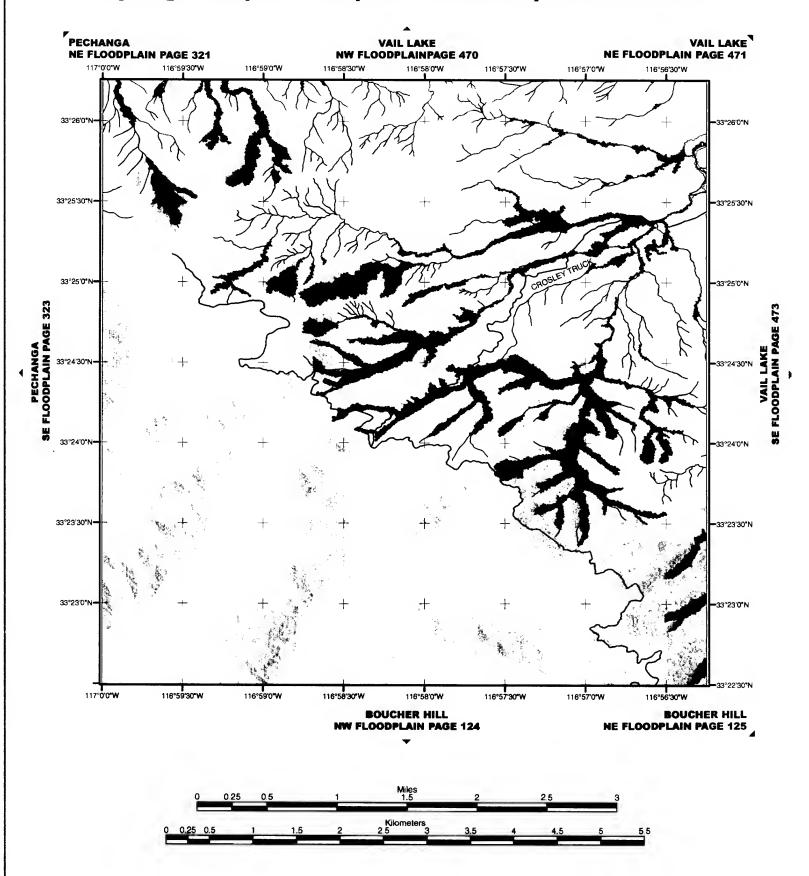
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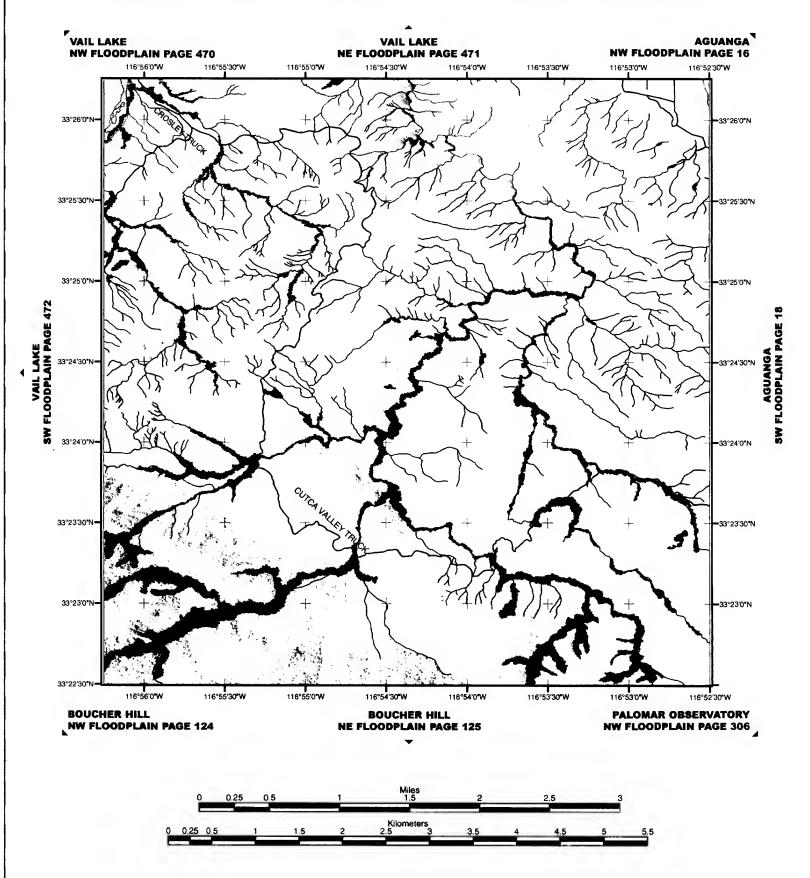
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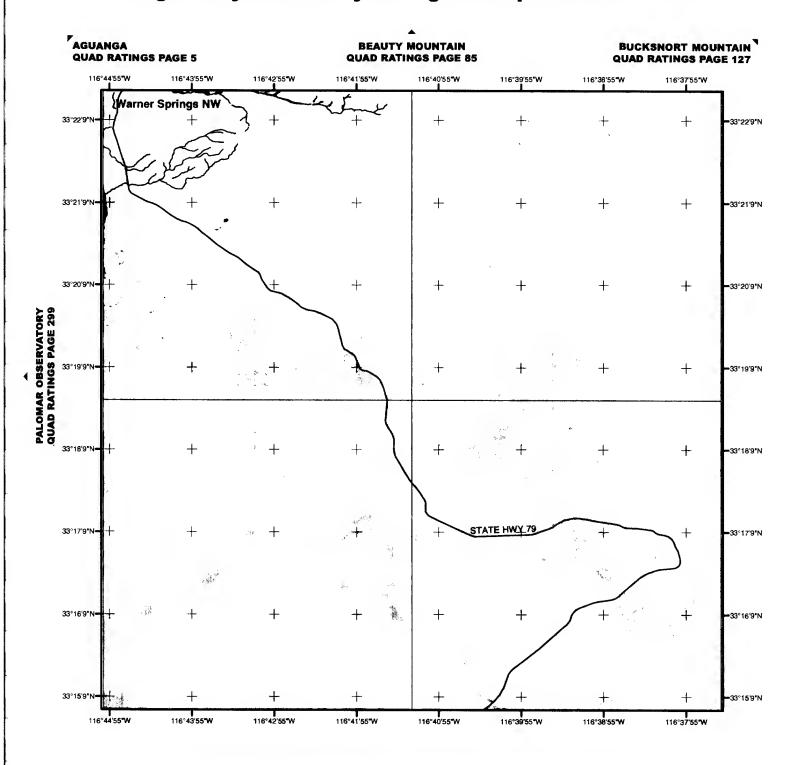
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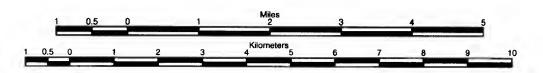


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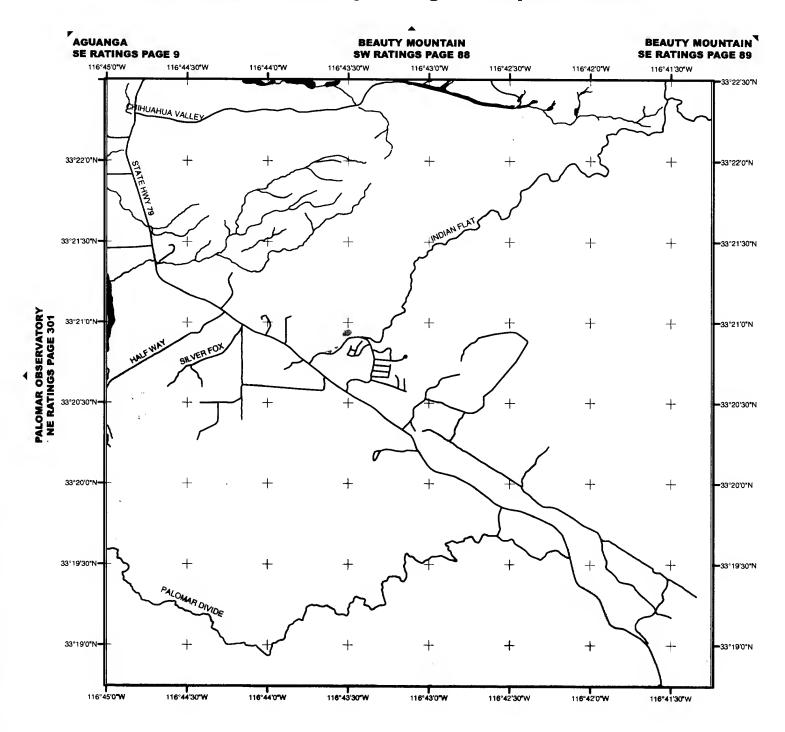


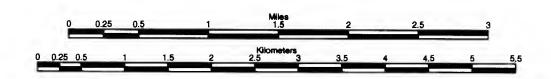
## Warner Springs Quadrangle Regulatory Probability Ratings for Aquatic Resources



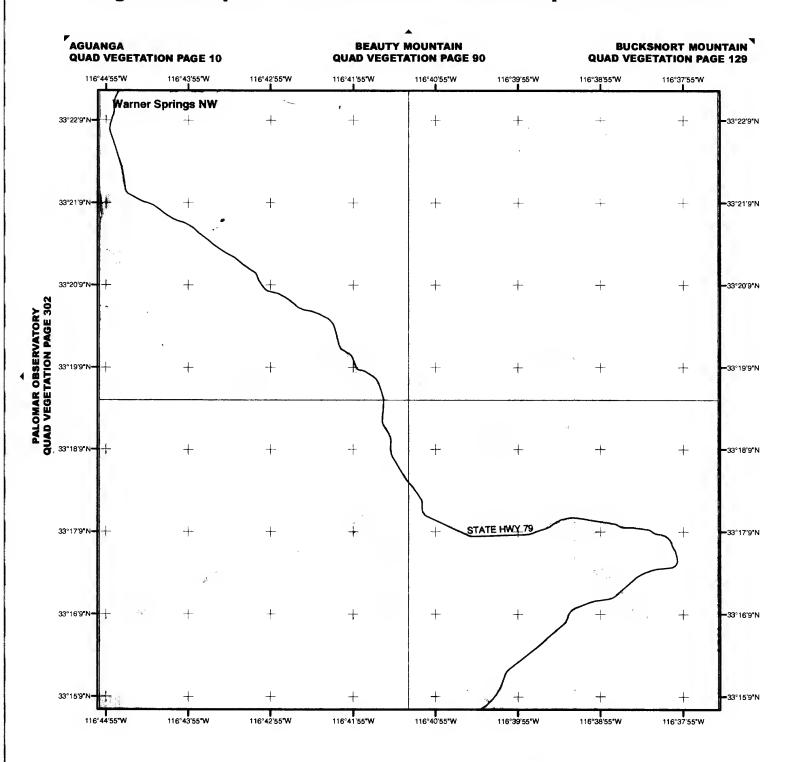


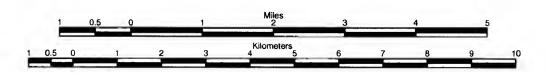
#### Warner Springs North West Quarter-Quadrangle Regulatory Probability Ratings for Aquatic Resources



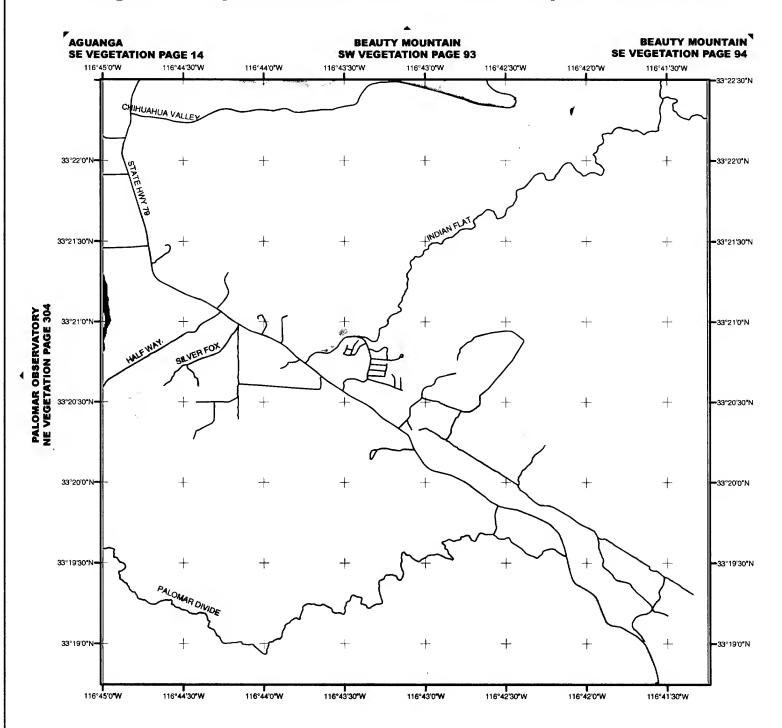


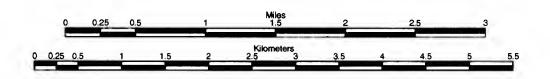
## Warner Springs Quadrangle Vegetation Species Association Units for Aquatic Resources



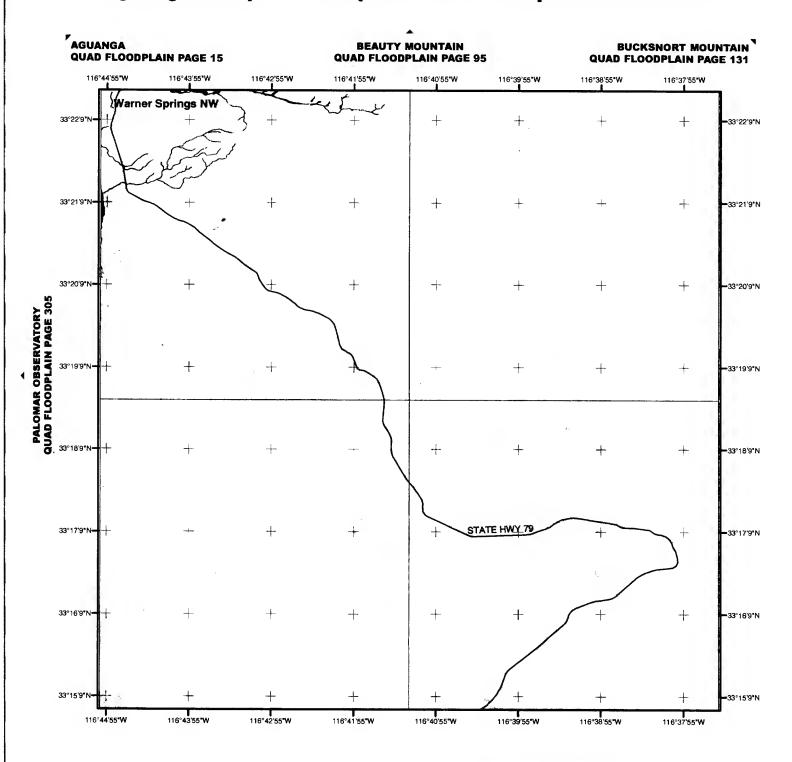


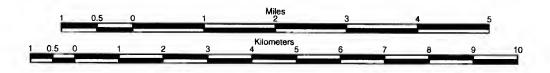
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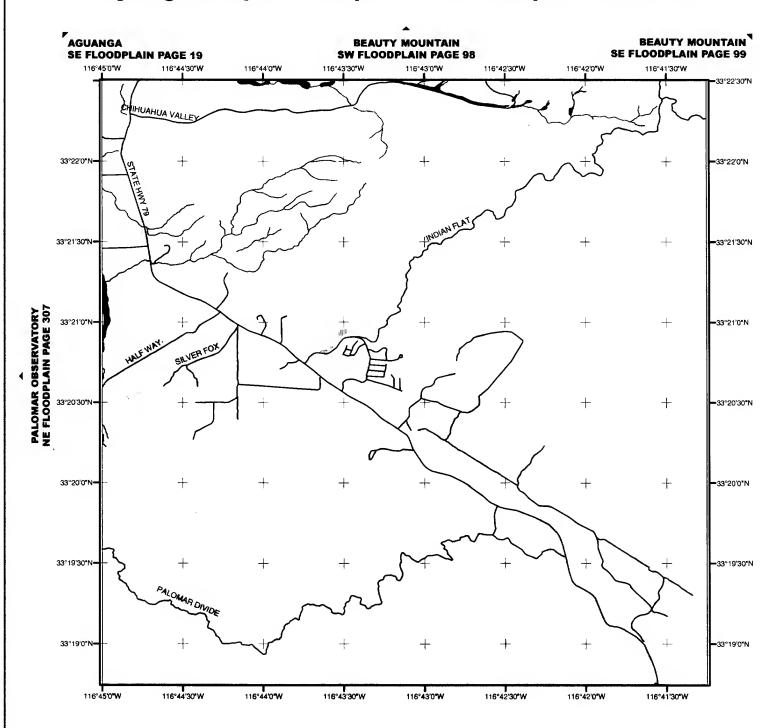


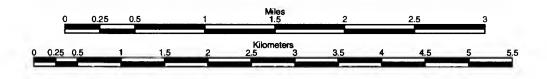
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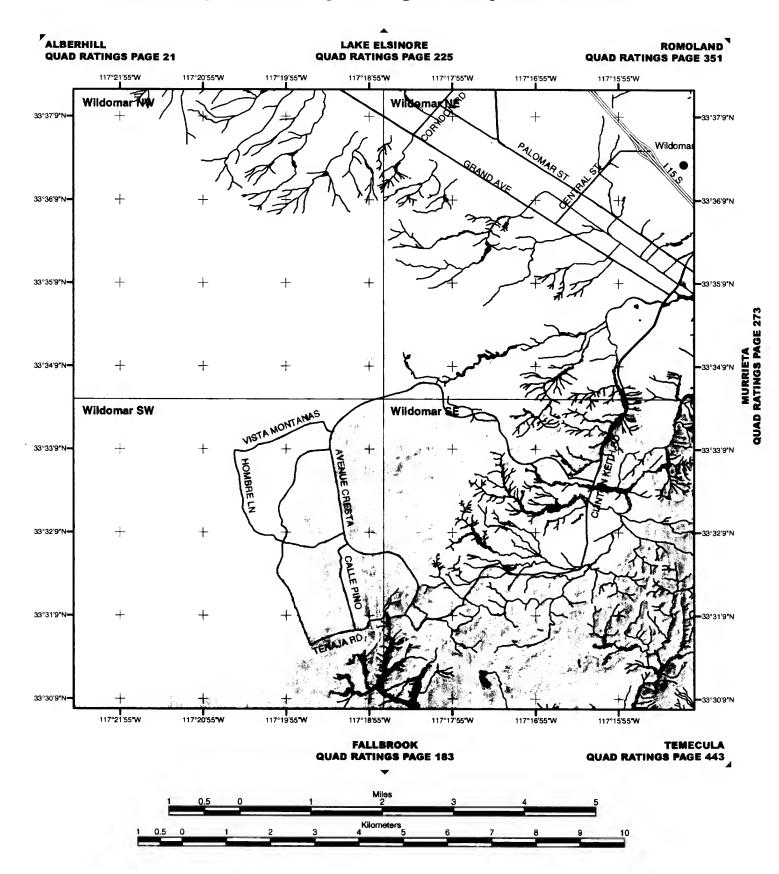


#### Warner Springs North West Quarter-Quadrangle Hydrogeomorphic Floodplain Units for Aquatic Resources

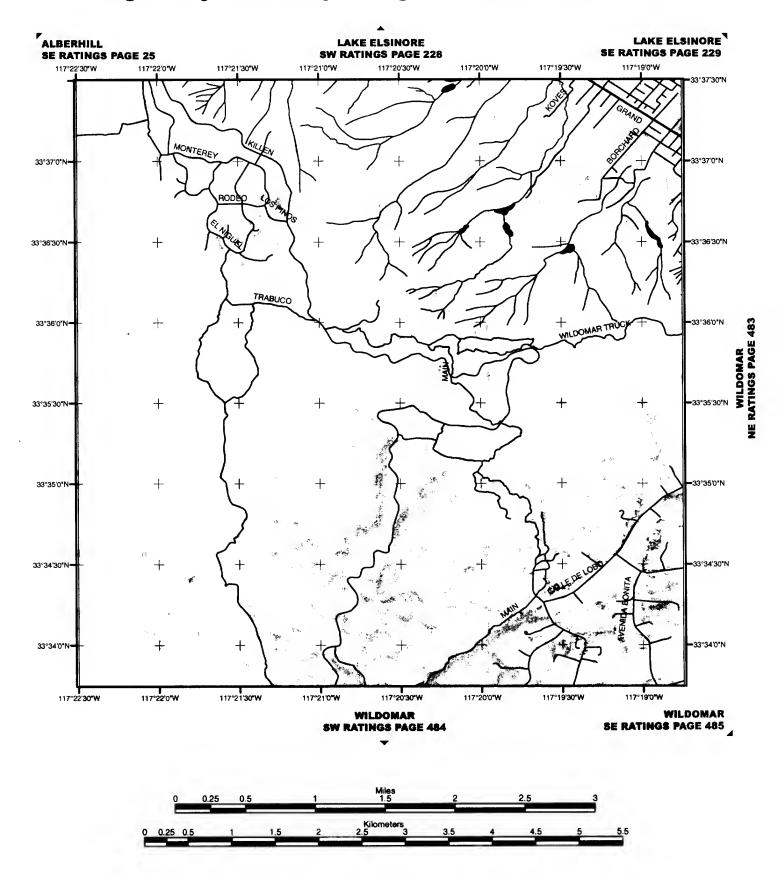




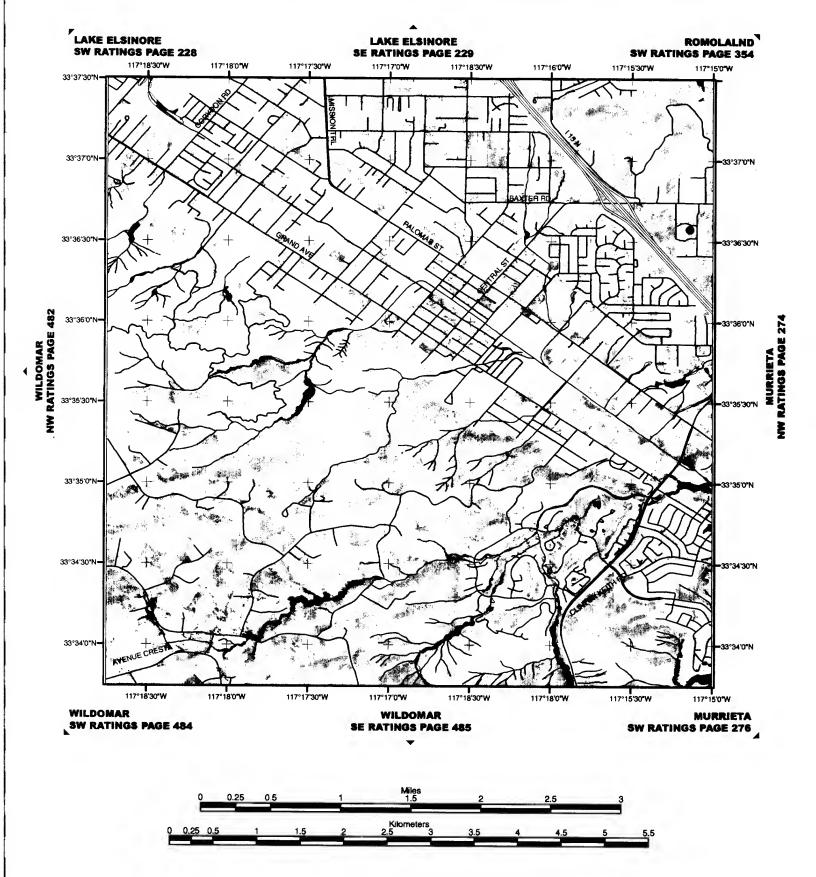
#### Wildomar Quadrangle Regulatory Probability Ratings for Aquatic Resources



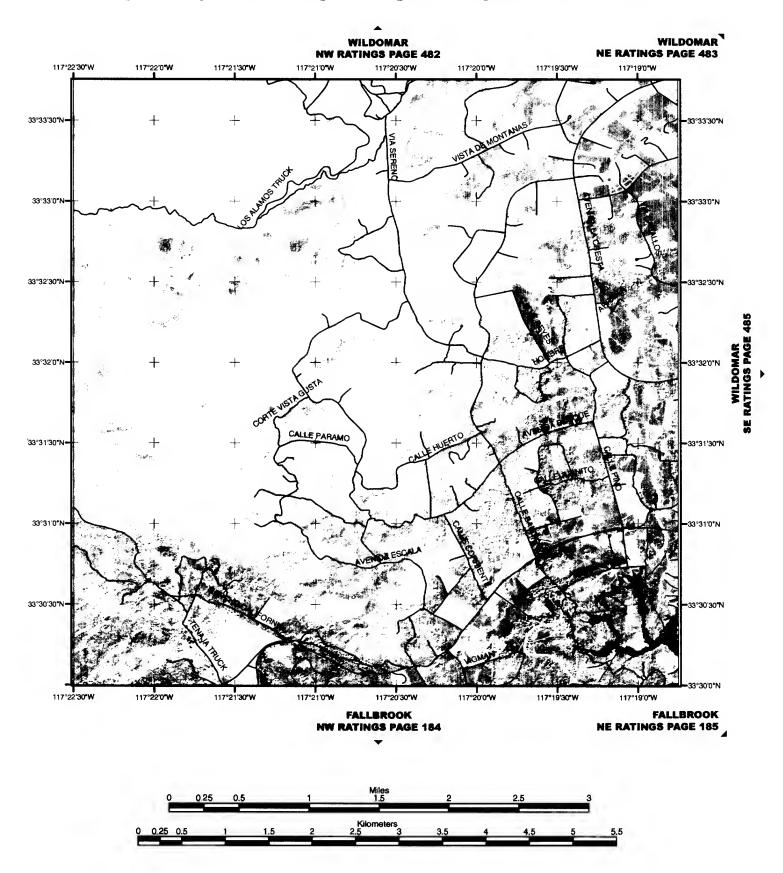
#### Wildomar North West Quarter-Quadrangle Regulatory Probability Ratings for Aquatic Resources



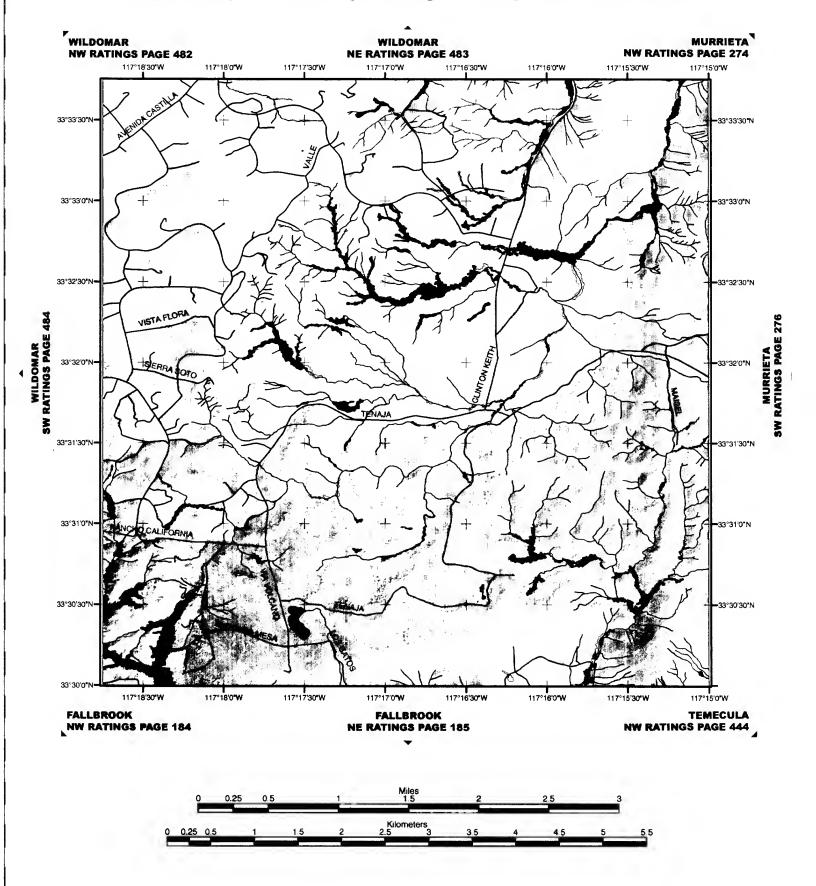
### Wildomar North East Quarter-Quadrangle Regulatory Probability Ratings for Aquatic Resources



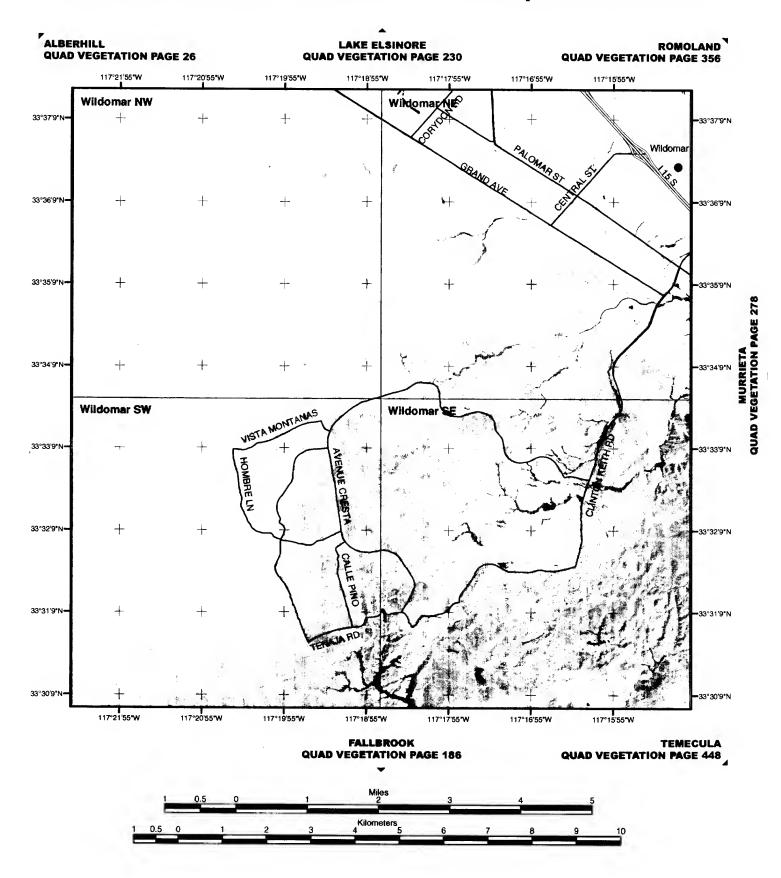
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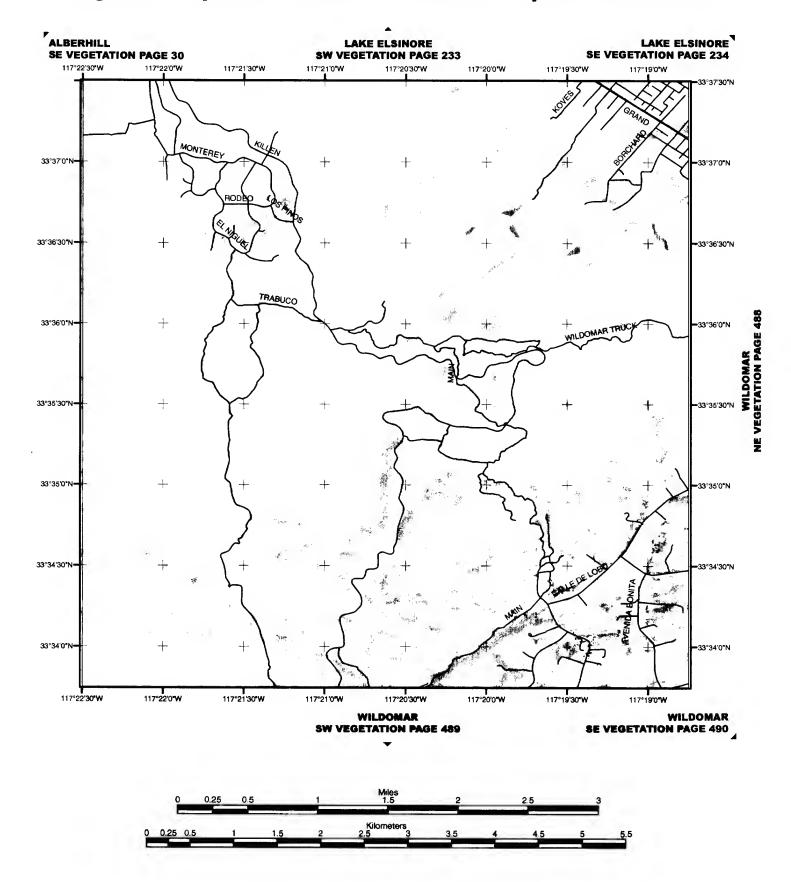
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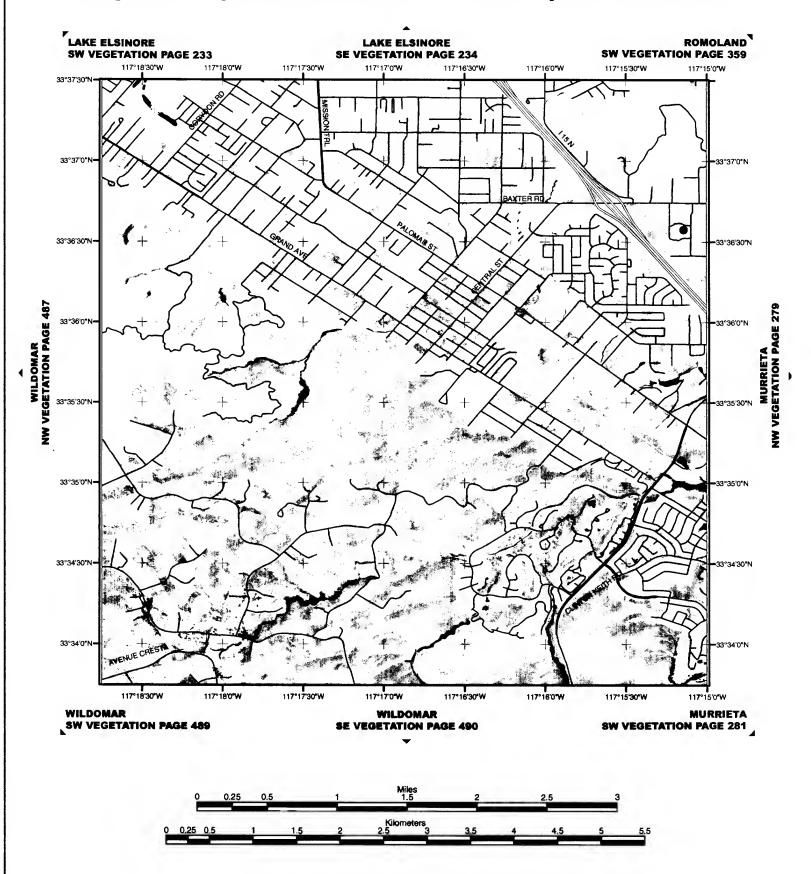
### Wildomar Quadrangle Vegetation Species Association Units for Aquatic Resources



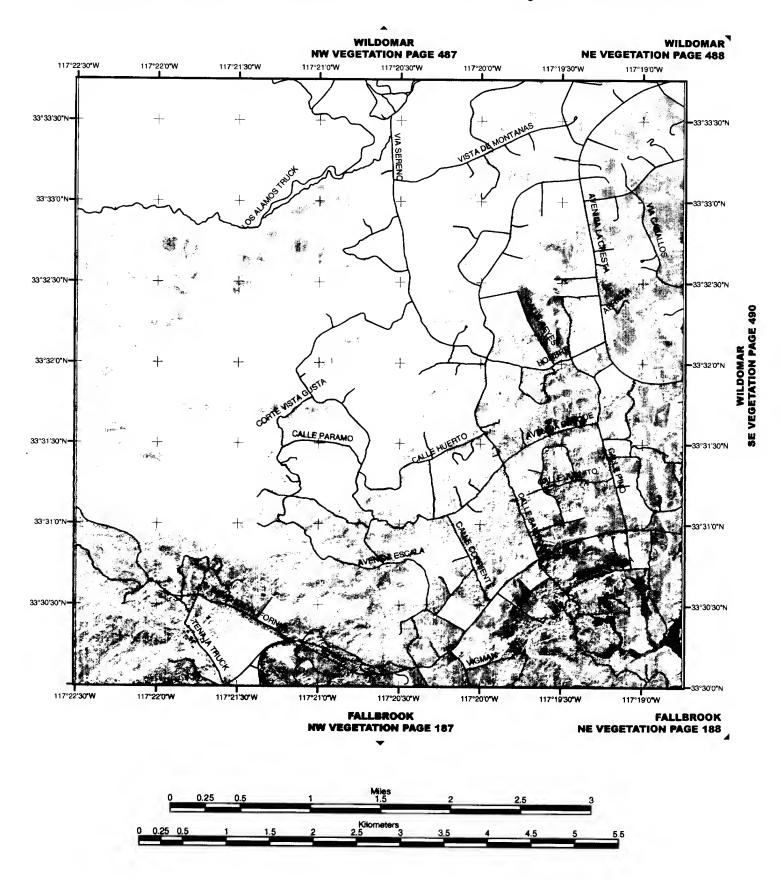
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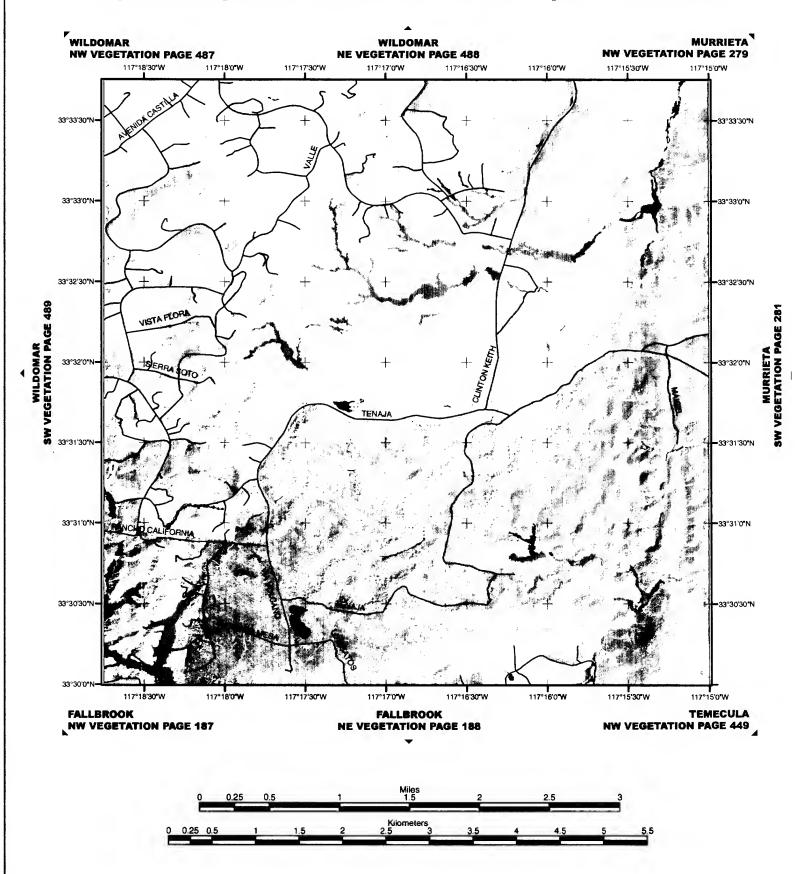
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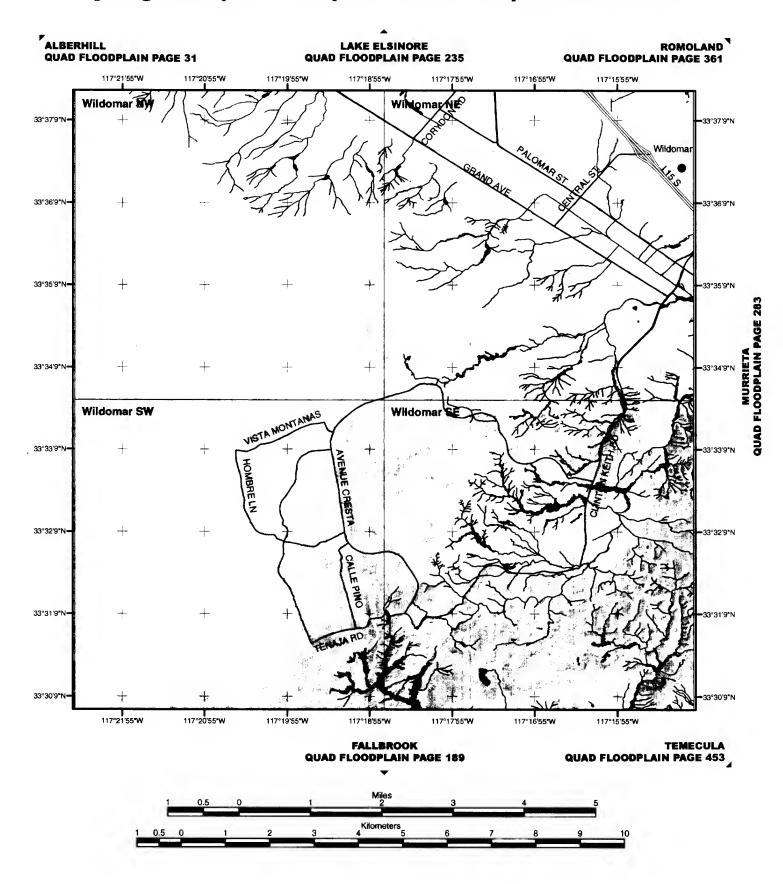
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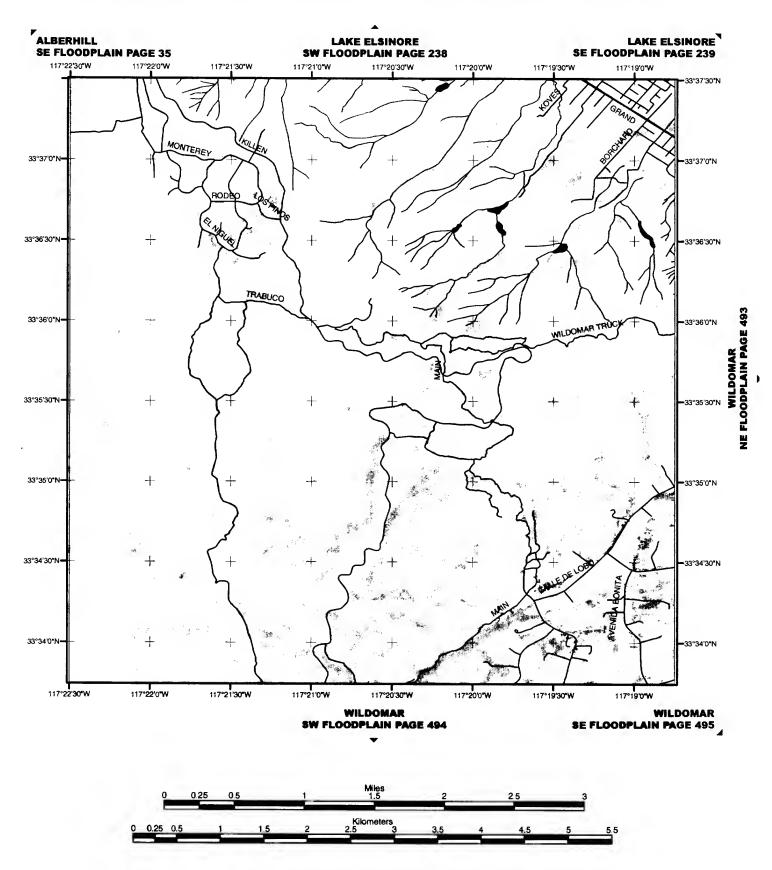
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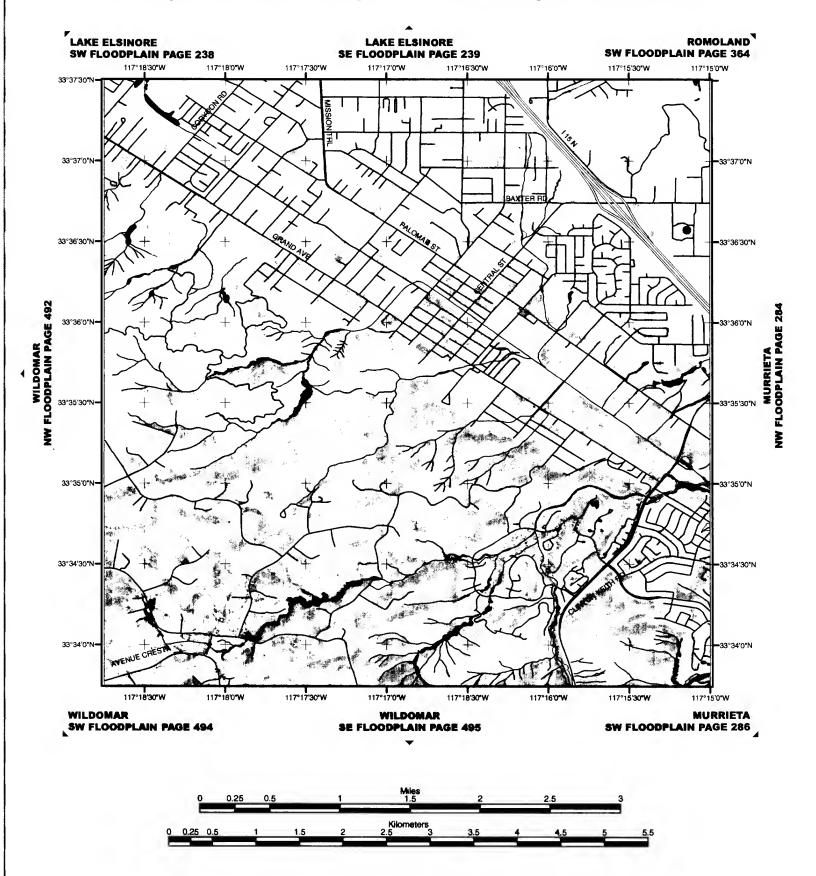
### Wildomar Quadrangle Hydrogeomorphic Floodplain Units for Aquatic Resources



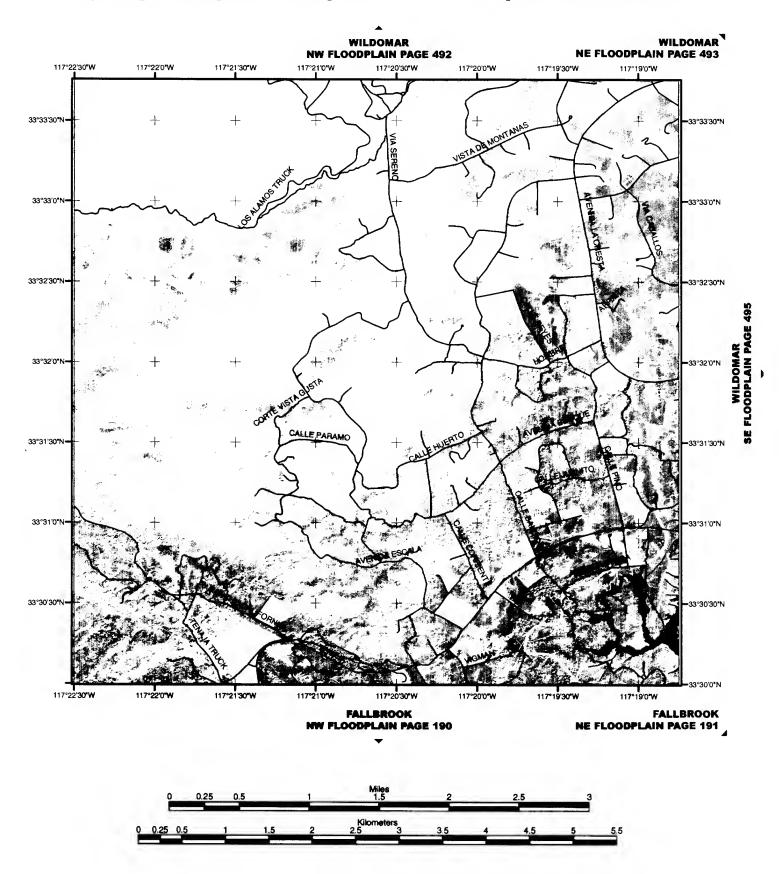
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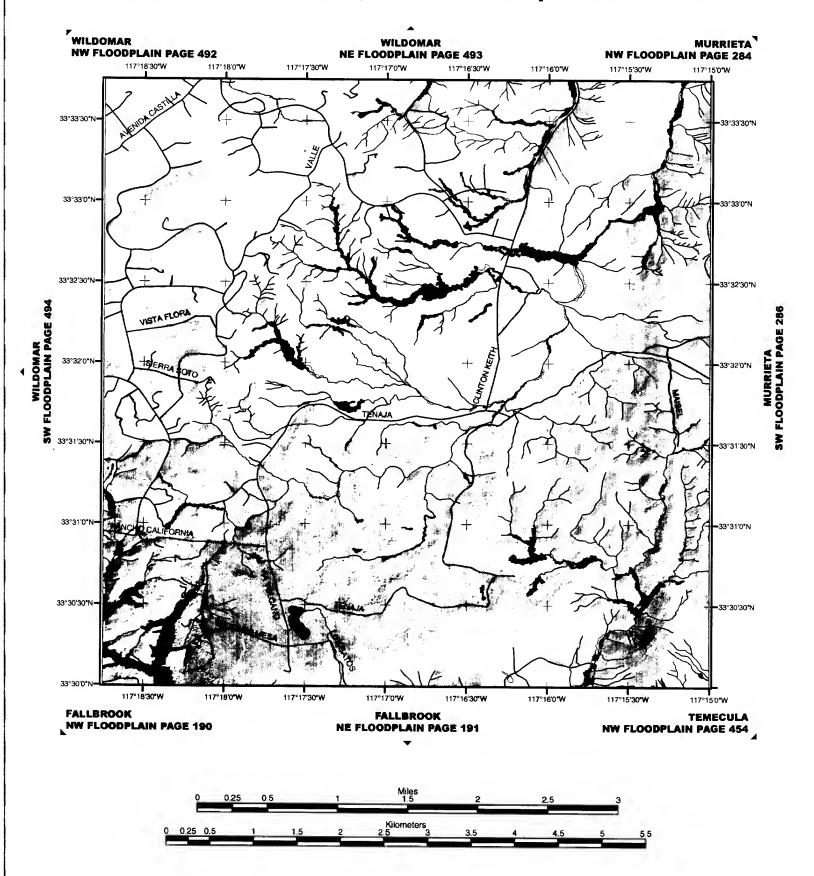
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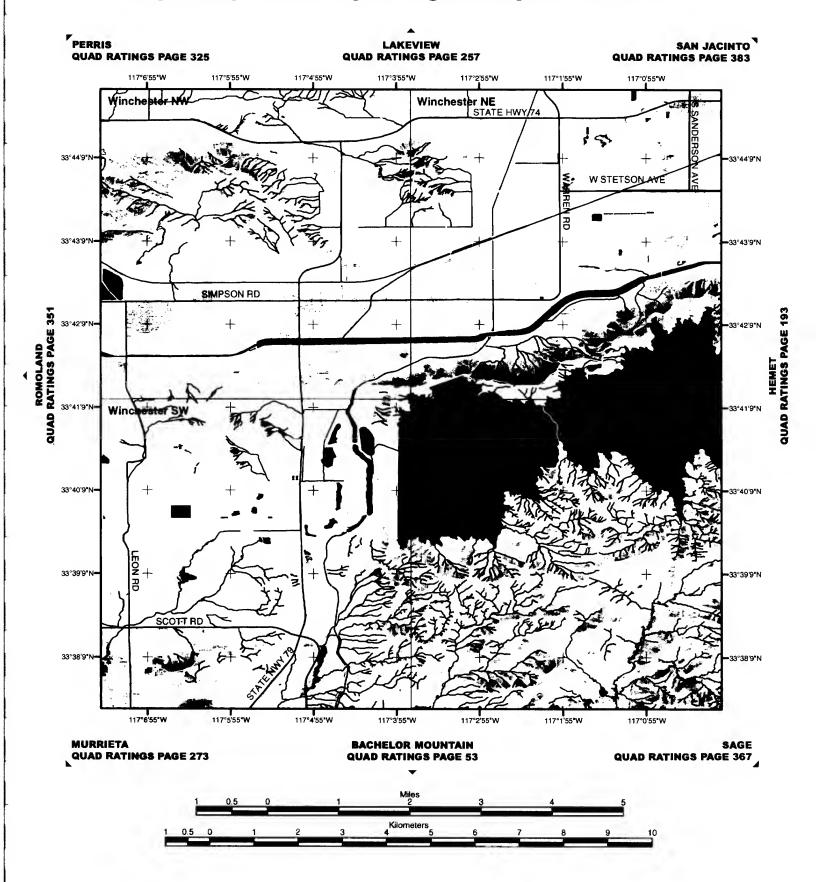
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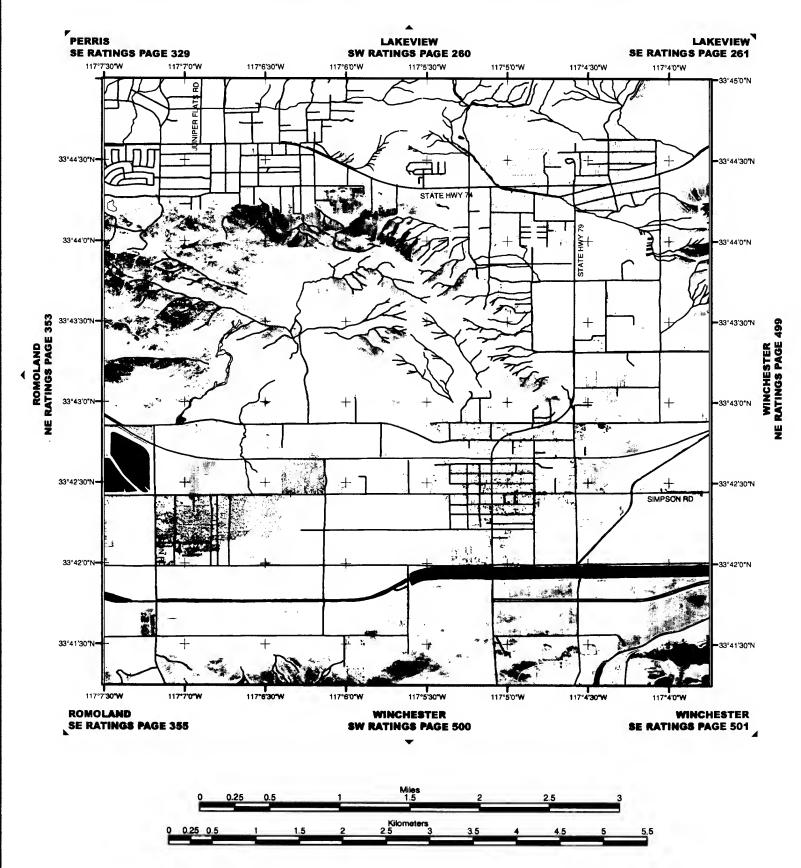
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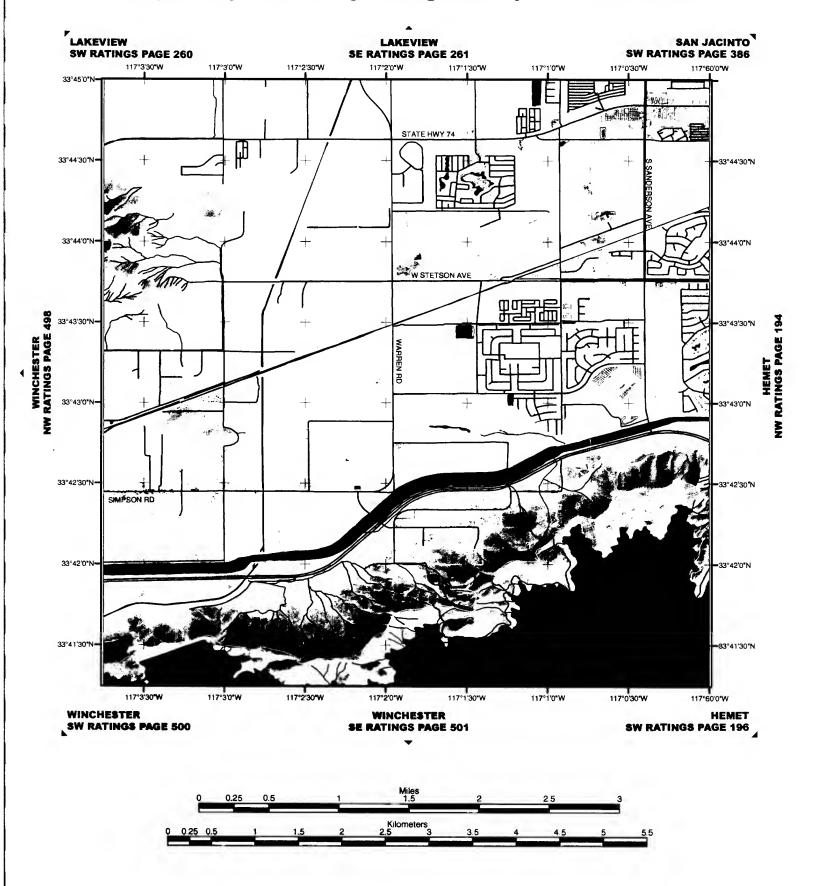
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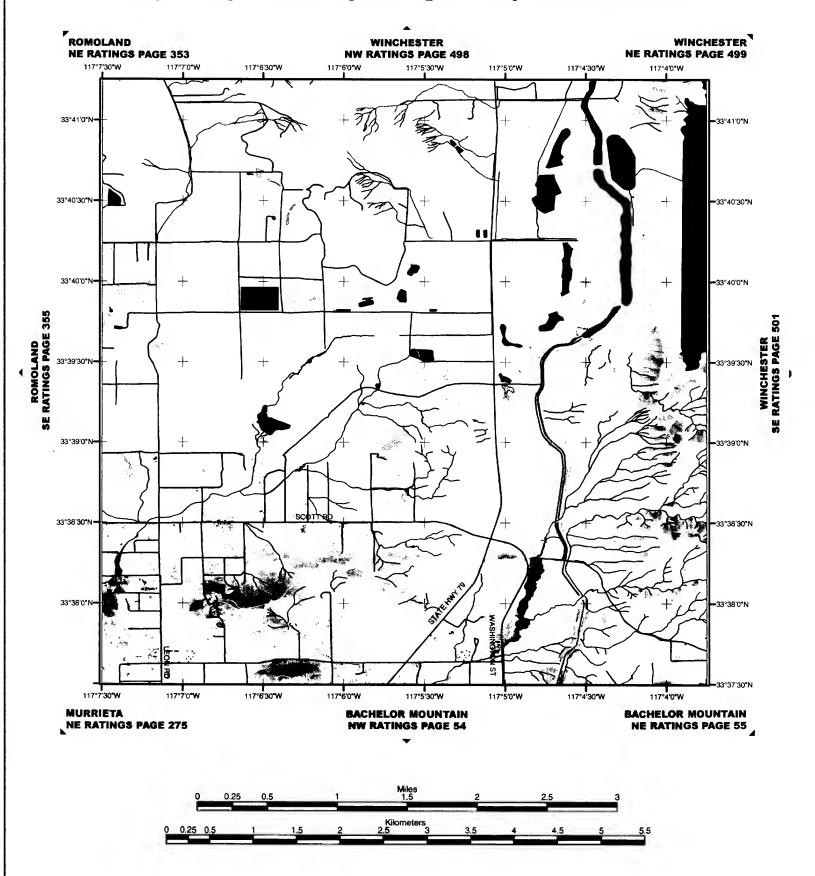
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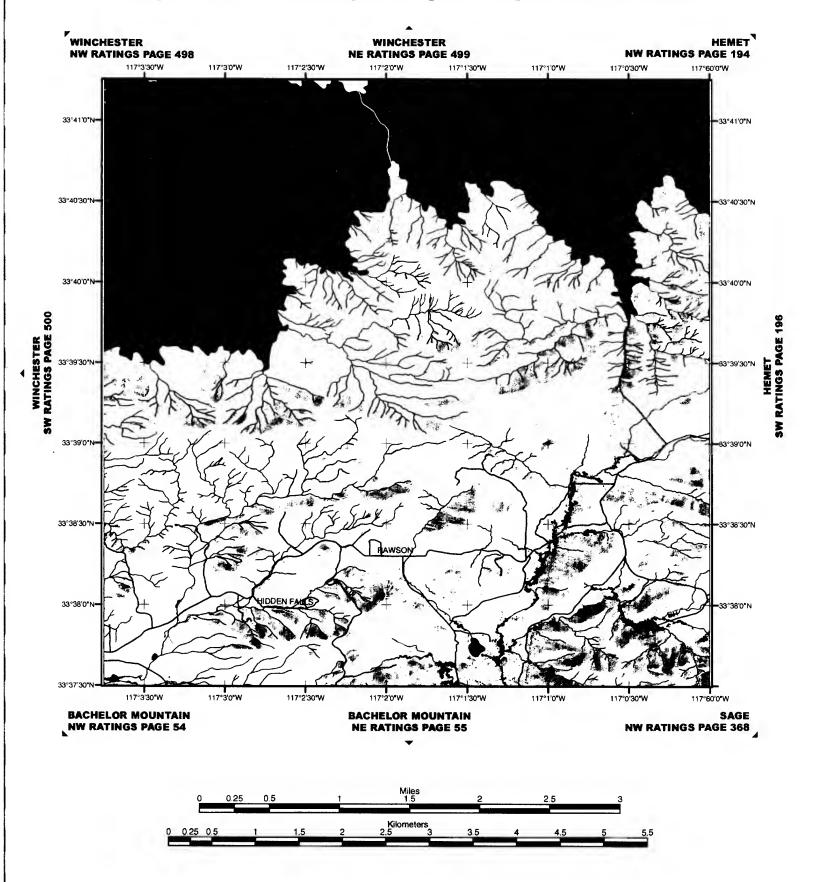
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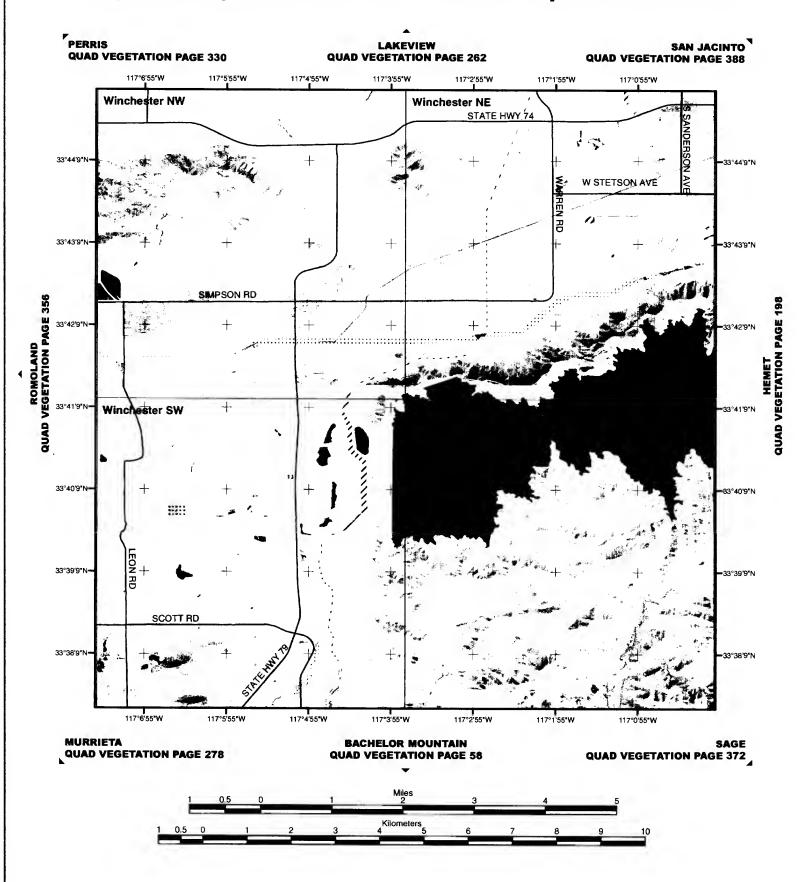
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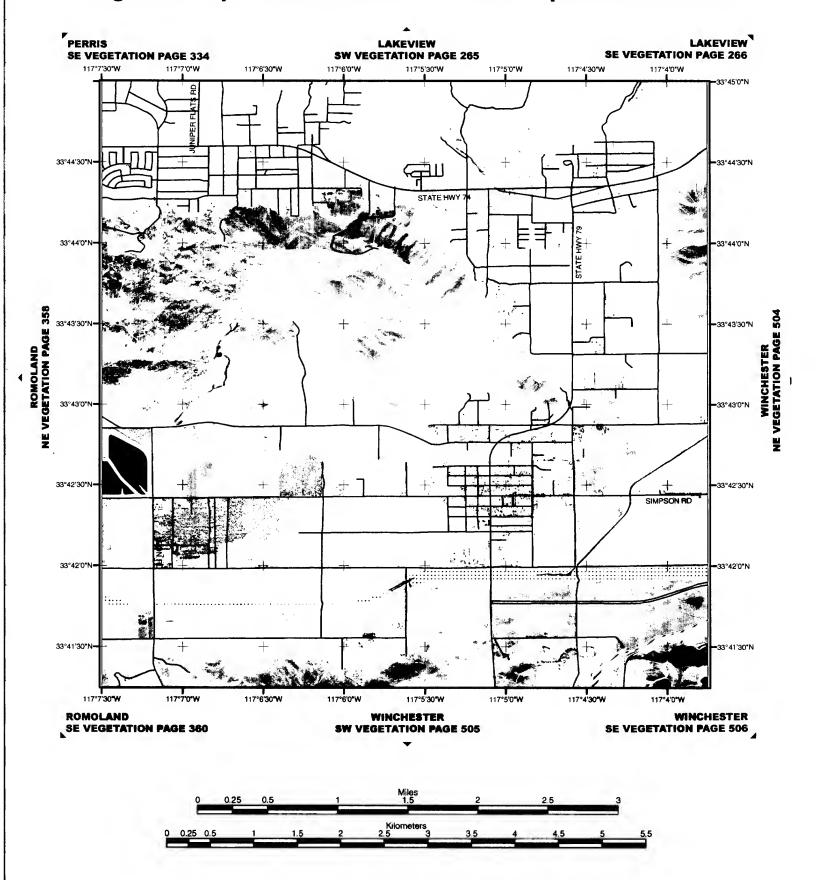
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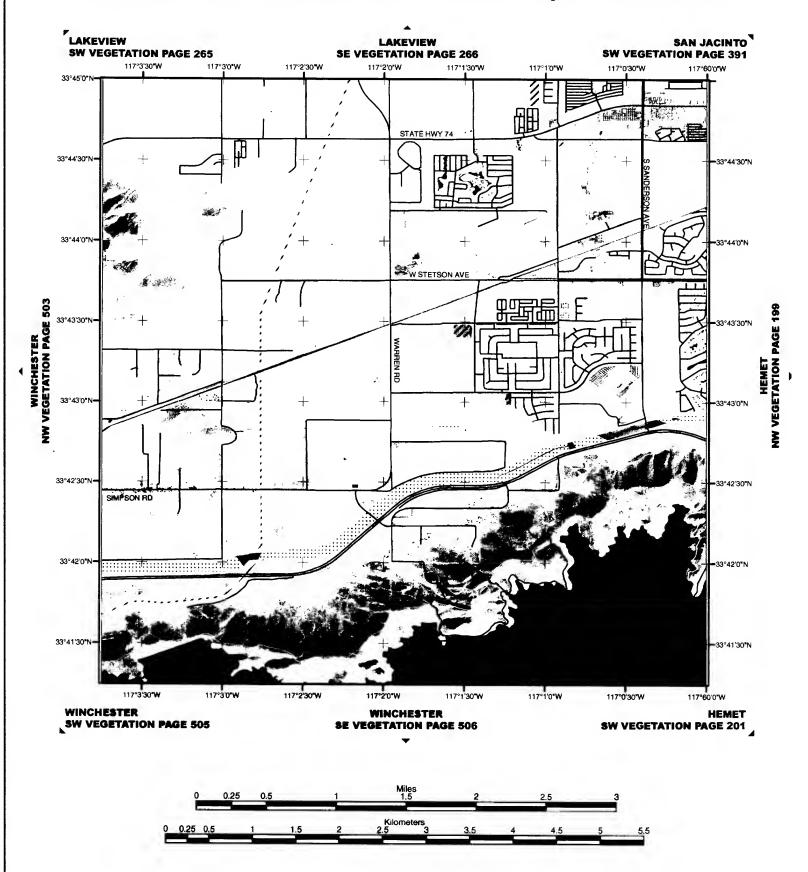
# Winchester Quadrangle Vegetation Species Association Units for Aquatic Resources



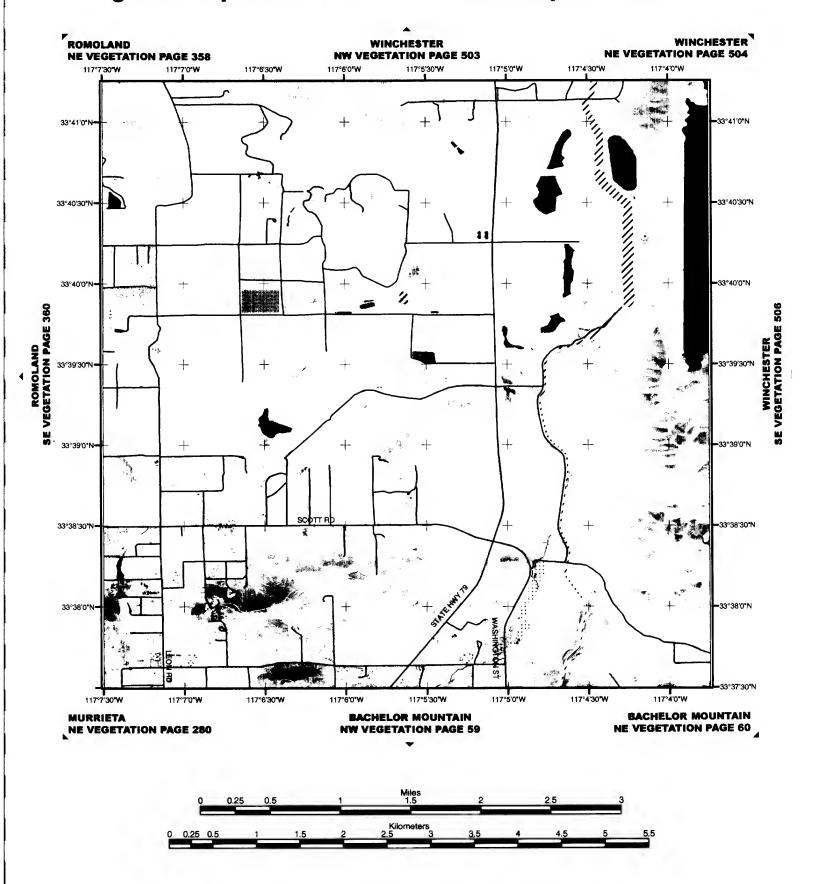
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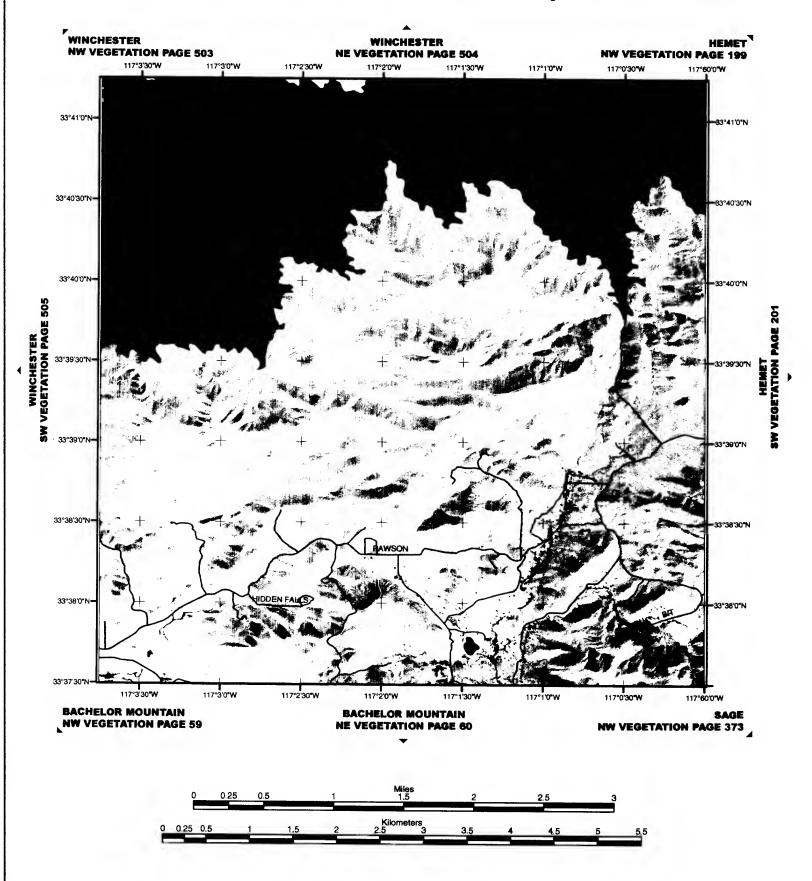
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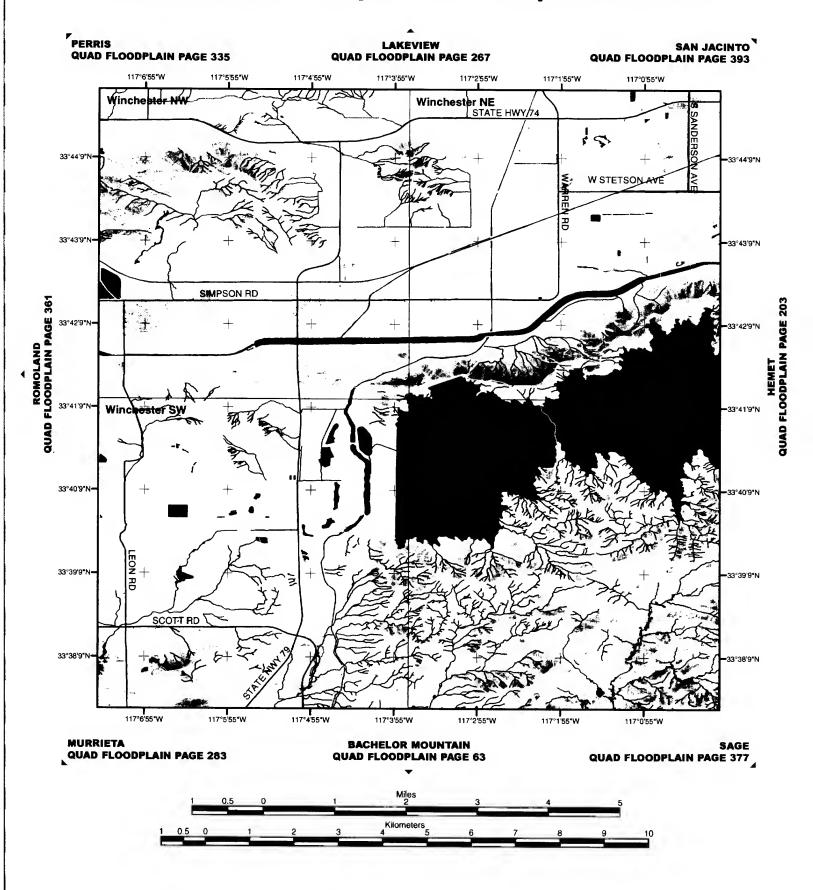
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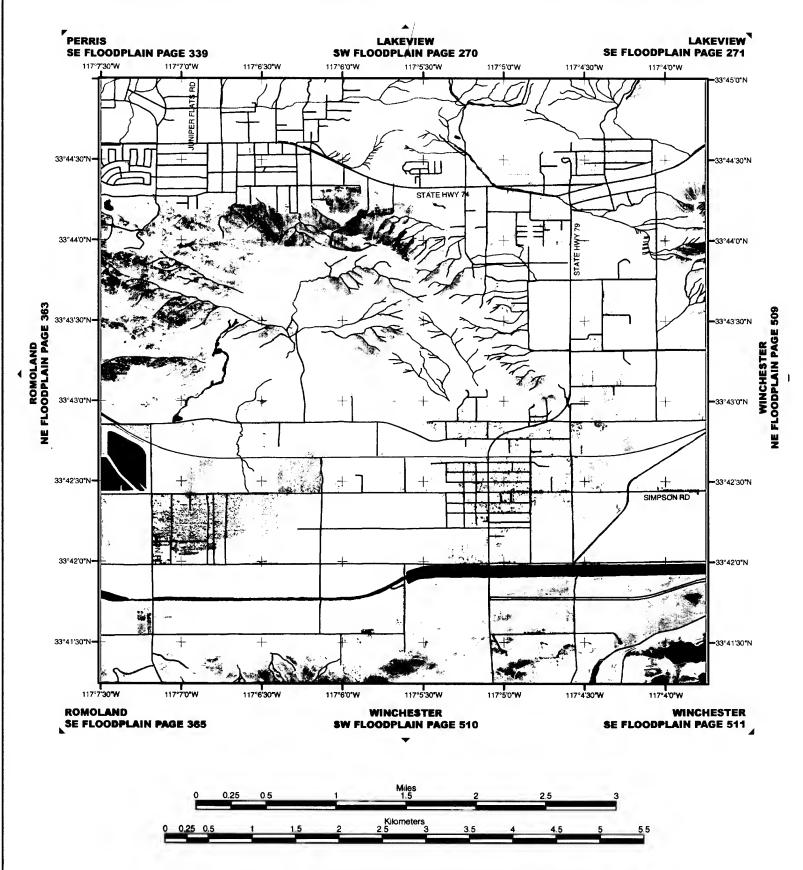
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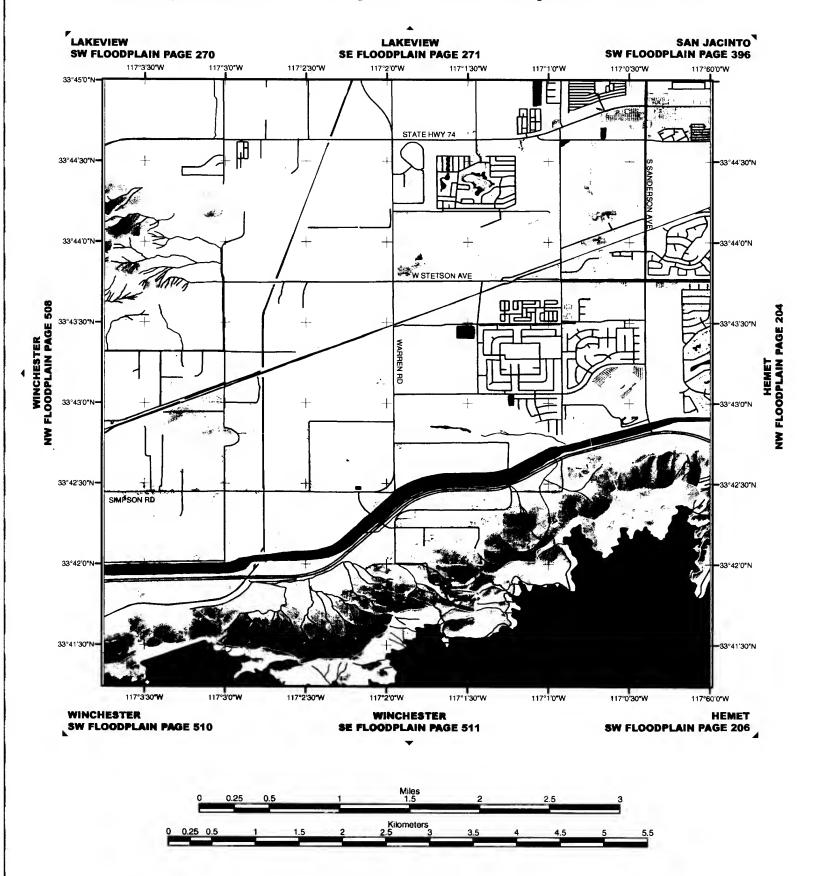
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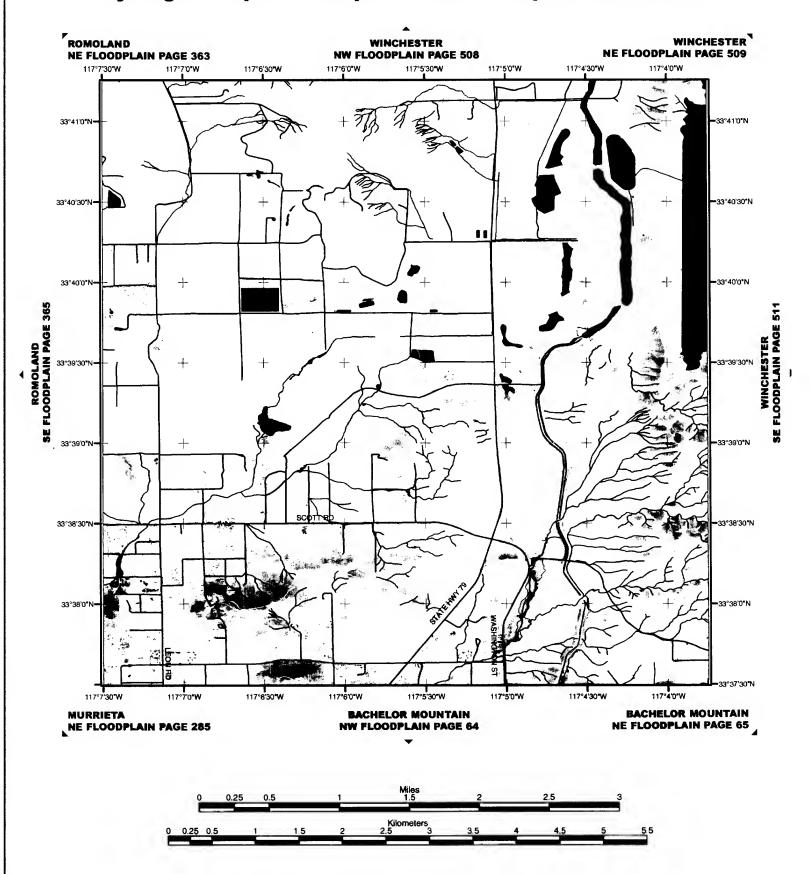
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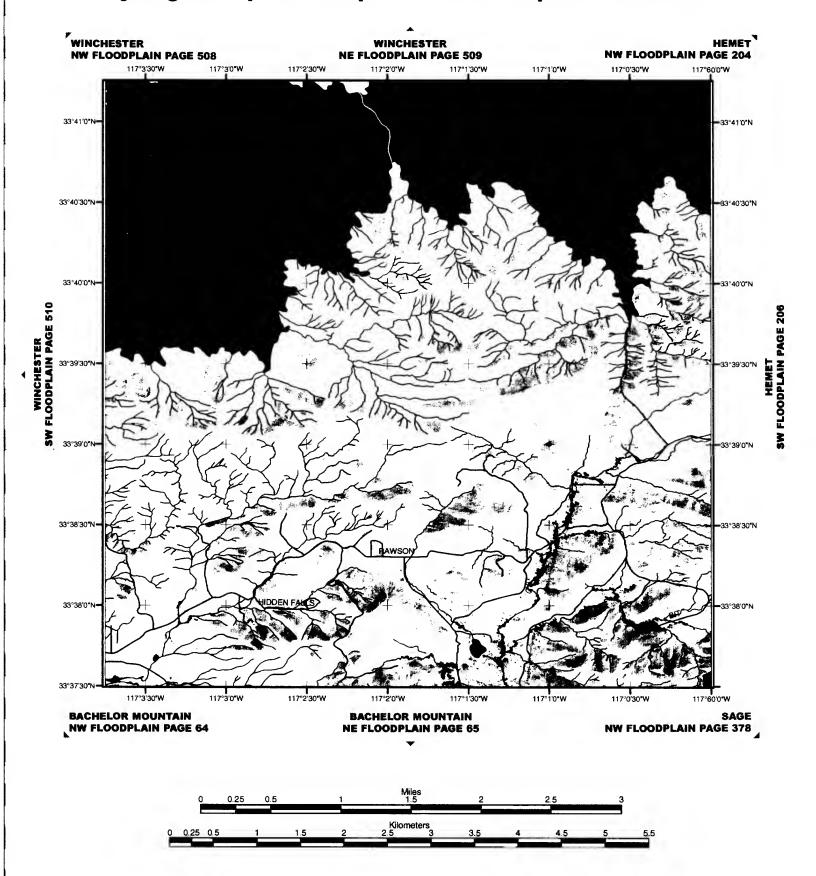
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# Winchester South West Quarter-Quadrangle Hydrogeomorphic Floodplain Units for Aquatic Resources



# Winchester South East Quarter-Quadrangle Hydrogeomorphic Floodplain Units for Aquatic Resources



# Map Legend

## **Boundaries**

San Jacinto and Portions of the Santa Margarita Watershed Hydrologic Sub Area

## **Transportation**

Freeways

# **Regulatory Probability Rating Units**

- Types meet the criteria for a wetland or WoUS 100% of the time
- Springs meet the criteria for a wetland or WoUS 100% of the time
  - Washes meet the criteria for a wetland or WoUS 100% of the time
  - Types meet the criteria for a wetland or WoUS 67 98% of the time
  - Types meet the criteria for a wetland or WoUS 33 66% of the time.
  - Types meet the criteria for a wetland or WoUS 2 32% of the time (primarily uplands)
- Types meet the criteria for a wetland or WoUS <2% of the time (primarily uplands)
- Unregulated upland
  - Problematic Active Floodplain

## Hydrogeomorphic Floodplain Units

Abandoned Floodplain/Terrace (Inundation Re occurance Interval Between 10 and 100 years)

- Active Floodplain (Inundation Re occurance Interval Between 1 and 10 years)
- Non Floodplain Riparian (Inundation Re occurance Interval >100 years)
- Problematic Active Floodplain (Inundation Re occurance Interval Between 1 and 10 years)
- Springs (Inundation Re occurance Interval of 2 years)
- Washes (Inundation Re occurance Interval of 2 years)

#### **Species Association Units** Vegetation

#### Artificial Structure

- //// Aquaduct
- //// Constructed Wetlands
- //// Disturbed Sites
- //// Flood Control Structure
- Lined Pond/Fountain
- Retention Basin
  - Sewage Pond

#### Juncus Meadow

- Juncus effusus
- XX Juncus mexicanus

#### Water Body

- Freshwater Pond
- Lake
  - Pond
    - River
    - Spring

### Montane Forest

- Abies concolor
- Pinus coulteri
- Pinus jeffreyi
- Pinus ponderosa
- Pseudotsuga macrocarpa

#### Herbaceous

### Native

- Riparian Dry (Dry Species)
  - Riparian Moist (Moist Species)
- Riparian Wet (Wet Species)

## Non Native

- Agricultural Weeds
- :::::: Common Weeds

### Grassland

#### Native

- Levmus triticoides
  - Muhlenbergia rigens
  - Polypogon spp.
  - Sporobolus spp.
  - Stipa pulchra

#### Non Native

- Agropyron repens
- ..... Avena barbata
- ...... Avena fatua
- Bromus diandrus
- ...... Bromus rubens
- :::::: Bromus tectorum
- Cynodon plectostachyus
- ::::: Echinochloa muricata
- :::::: Hordeum leponnum
- ::::::: Lolium perenne

### Chaparral

- Adenostoma sparsifolium
- Arctostaphylos pungens
  - Arctostaphylos spp.
  - Baccharis sarathroides
  - Ceanothus tomentosus
  - Quercus berberidifolia
  - Rhus integrefolia
- Rhus ovata
- Rhus trilobata

#### Alkali Marsh

- Alkali Marsh
- Distichlis spicata
- Typha spp.
- Problematic Active Floodplain

## Shrub

#### Native

- Salix spp
  - Artemisia nova
  - Artemisia tridentata
  - Atriplex californica
- Atriplex canescens
- Baccharis pilularis
  - Baccharis salicifolia
  - Bebbia juncea
  - Brickellia californica Chilopsis linearis
- Encelia farinosa
- Eriodictyon crassifolium
- Eriogonum fasciculatum
- Eriogonum wrightii
- Gutierrezia sarothrae
- Isocoma menziesii
- Juniperus californica
- Lepidospartum squamatum
- Salix exigua
  - Salix goodingii
- Salix laevigata
- Salix lasiolepis
  - Salix melanopsis
  - Salvia mellifera
- Sambucus mexicana
- Senecio flaccidus
- Non Native
- Nicotiana glauca Olea europea
- ..... Tamarix spp.

  - Man Made Structures\_\_Disturbed Sites

## Trees/Woodland/Forest

- Native
- Alnus rhombifolia
- Fraxinus dipetala
  - Fraxinus velutina
    - Platanus racemosa
  - Populus balsamifera Populus fremontii
  - Quercus agrifolia
- Quercus chrysolepis
- Quercus engelmannii
- Quercus kelloggii
  - Salix exigua
- Salix goodingii
- Salix laevigata
- Salix lasiolepis
- Salix spp.
- Washingtonia filife Non Native
- Eucalyptus spp.
- Schinus molle Freshwater Marsh
  - Azolla filiculoides
    - Disturbed Wetland
    - Eleocharis spp.
      - Juncus effussus
      - Juncus mexicanus
  - Scirous acutus Scirpus americanus
    - Scirpus microcarpus
- Unvegetated
  - Dry Wash Channel

Typha spp.

Lakeshore

### Form Approved REPORT DOCUMENTATION PAGE OMB No. 0704-0188 Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing this collection of information. Sent comments regarding this burden estimate or any everying instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing this collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS. 1. REPORT DATE (DD-MM-YY) 2. REPORT TYPE 3. DATES COVERED (From - To) May 2003 Technical Report 4. TITLE AND SUBTITLE 5a. CONTRACT NUMBER 5b. GRANT NUMBER Map Series of Aquatic Resources for San Jacinto and Portions of the Santa Margarita Watersheds 5c. PROGRAM ELEMENT NUMBER 6. AUTHOR(S) 5d. PROJECT NUMBER 5e. TASK NUMBER Robert W. Lichvar and Michael Ericsson 5f. WORK UNIT NUMBER 7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) 8. PERFORMING ORGANIZATION REPORT U.S. Army Engineer Research and Development Center Cold Regions Research and Engineering Laboratory 72 Lyme Road ERDC/CRREL TR-03-10 Hanover, NH 03755-1290 9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) 10. SPONSOR / MONITOR'S ACRONYM(S) **Environmental Protection Agency** Riverside County Flood Control EPA/RCFCD Washington, DC and Water Conservation District 11. SPONSOR / MONITOR'S REPORT California NUMBER(S) 12. DISTRIBUTION / AVAILABILITY STATEMENT Approved for public release; distribution is unlimited. Available from NTIS, Springfield, Virginia 22161. 13. SUPPLEMENTARY NOTES 14. ABSTRACT The purpose of the map series presented here is to visually present the identified aquatic resources in San Jacinto River and portions of the Santa Margarita River watersheds in western Riverside County, California, as part of the Special Area Management Plan (SAMP). A SAMP is a comprehensive aquatic resource planning effort in the context of Section 404 of the Clean Water Act (CWA). The U.S. Army Corps of Engineers, Los Angeles District is leading the development of the SAMP, and the Riverside County Flood Control District, representing the County of Riverside, is the local stakeholder. These are the spatial results of an overall study undertaken by the SAMP. The size of the study area is 36,1953 ha (894,405 acres). Mapped results of this study were compiled in the field using ArcView 3.2 geographic information system (GIS) and mapped at a scale of 1:4800 using Color Infra-Red Digital Orthoquads (DOQ) imagery. A unique method of combining the occurrence of vegetation communities and fluvial surfaces to determine the probability of being regulated was used to identify aquatic resources that might be considered as regulated under Section 404 of the CWA.

15. SUBJECT TERMS	Clean Water Act Fluvial	Riparian SAMP	Watershed Wetlands		Vegetation
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